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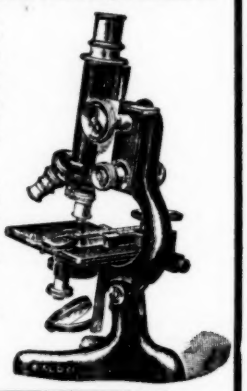

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Delivered at the Discussion on Influenza at the Royal Society of Medicine, Nov. 13th, 1918,

BY SIR ARTHUR NEWSHOLME, M.D., K.C.B.,
MEDICAL OFFICER TO THE LOCAL GOVERNMENT BOARD.

MR. PRESIDENT AND GENTLEMEN,—When I promised to open this discussion it could not be forecasted that we were about to experience our national share of a pandemic of influenza unexampled both in distribution and severity. Under present circumstances a discussion on influenza will necessarily include consideration, so far as our lack of knowledge will permit, of the circumstances leading to the minor epidemics with which in recent years we have been fairly familiar, and those leading to the mysterious occurrence of the wider pandemics, such as those of 1890 and of the present year.

It is necessary, in my view, to consider these minor epidemics and the endemic prevalence of influenza in this country in relation to bronchitis and pneumonia, which year by year cause a much heavier toll on health and life than is demanded by influenza. I have little hope of success of any personal or public measures against influenza which will not influence even more favourably the incidence of bronchitis and pneumonia. It is not improbable, in fact, that the influenza problem may be most successfully attacked when influenza is not epidemically prevalent.

ETIOLOGY.

The first difficulty is to define influenza. Is it one disease, or a group of diseases? And is the disease now prevailing the disease which prevailed in the spring, and still more in July, of this year? These two questions cannot easily be separated. The symptoms were usually milder in the earlier than in the present outbreak, but that may be due to the very exceptional culmination of the epidemic in the summer months. War conditions prevented civilian bacteriological work on the disease on a considerable scale, but I am hoping that this discussion will elicit contributions as to the bacteriology of the July and the present outbreak, and that later the results will be available of the inquiries by the Medical Research Committee, who have been collating evidence from military as well as civilian outbreaks, and making independent inquiries.

The report of the Influenza Committee of the Advisory Board to the D.G., Medical Department, France,[1] shows that influenza has occurred at intervals among our forces in France, and that a serious epidemic occurred in the spring of this year. The known facts bearing on the position of Pfeiffer's influenza bacillus as the cause of the epidemic are well summarised in this report. This bacillus cannot be said to have established its position, nor can it be disregarded; for even if some other organism be the essential virus of influenza, the Pfeiffer bacillus is probably one of the chief sources of the damaging complications of this disease.

From this country, from France, and from America there is evidence that occasionally influenza kills rapidly by toxæmia, but more often by pulmonary complications; and that in producing these complications hæmolytic streptococci have been predominating organisms, the Pfeiffer bacillus and the pneumococcus also being found in a varying proportion of cases. The increase in virulence in streptococci in animal passage is well known. There can be no doubt that all these bacteria, often acting in conspiracy, have contributed greatly to the recent mortality from influenza, but whether there is in addition a hitherto undiscovered virus to which influenza is primarily due is still a moot point.

The occurrence of such mixed infections is well known in other diseases; it is a chief source of mortality in measles, and success in the sanatorium treatment of tuberculosis depends largely on the elimination of secondary infections; and this points to oral, naso-pharyngeal, and dental hygiene and life under improved sanitary conditions as at present among the most hopeful lines of action in diminishing the mortality from bronchitis, pneumonia, and influenza in the general population.

[1] Brit. Med. Jour., Nov. 9th, 1918.

INFLUENZA AS A CLINICAL ENTITY.

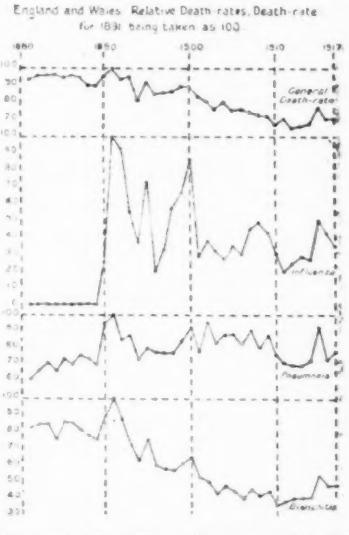
In view of the uncertainty in the bacteriological diagnosis of influenza, can this disease be recognised as a clinical entity? In typical cases it can, but certainly not in a very large proportion of atypical and modified attacks. In France, for instance, it has been found difficult to diagnose influenza from trench fever when the latter is unaccompanied by relapses. The main diagnostic evidence of the presence of influenza is its occurrence epidemically or pandemically. Diagnosis by this means is not helpful in prophylaxis, and there is the further possibility that other catarrhal infections may—though there is little evidence of this—take on transcontinental travels. This probably happens with the meningococcus, causing in most recipients little or no evidence of disease.

But the facts remain that influenza is a specific disease recognisable in severe outbreaks, and that it is a disease which, with the exception of plague and cholera, has on occasion travelled further and more rapidly over the world than any other recognised disease. It differs from these two diseases in that their pandemic course can be stayed by organised measures which are well within human capacity. I know of no public health measures which can resist the progress of pandemic influenza. It is noteworthy that the relative failures of preventive medicine and public health to secure control over disease have been concerned with diseases in which infection is received by the respiratory tract—especially influenza, bronchitis, pneumonia, measles, and whooping-cough.

DEATH-RATES FROM CHIEF CATARRHAL DISEASES.

We need further knowledge—epidemiological, pathological, and bacteriological—of all these diseases before they, and especially before influenza, can be brought within the scope of preventive medicine. Acute respiratory diseases, chiefly bronchitis and pneumonia, cause approximately one-sixth of the deaths from all causes; and this does not include the deaths in measles and whooping-cough chiefly caused by respiratory complications, and the deaths under the heading of other diseases in which respiratory complications turn the balance against recovery.

FIG. 1.



In Fig. 1 is shown the general course of the death-rate in this country since 1881 from the three chief fatal catarrhal diseases. The death-rates are given as relative figures, all the rates being reduced to the same magnitude so that a comparison may be made of the percentage variation under each heading.[2] The variations in the death-rate from influenza are evidently greater than those for pneumonia and bronchitis, though in nearly every instance they are in the same direction in any given year. The decline of the death-rate from bronchitis without corresponding increase of pneumonia points to the conclusion that much of the decline under the first heading is real and not due to changing fashion in certification.

In Figs. 2 and 3 this comparison between deaths in London from influenza, bronchitis, and pneumonia is pursued further,

[2] It should be noted that even in years in which influenza is epidemic bronchitis and pneumonia cause several times as many deaths as this disease. Probably many of these deaths are secondary to influenza.

the four-weekly incidence of mortality from each of these diseases being shown on the graph, for the four years 1889–92, in three of which influenza was epidemic, and for the four years 1915–18, in each of which some rise of the influenza curve occurred. In three of these last years the rise followed the almost universal rule of winter or spring incidence, the exception being the larger peak of July, 1918, and the still higher present peak. Several important points may be gathered from these graphs. Pneumonia and bronchitis nearly always have their maximum mortality in the winter months. In 1891 excessive mortality from both bronchitis and pneumonia was prolonged into the late spring, coincidently with a spring epidemic of influenza. In 1918 the summer outbreak of influenza was not associated with marked increase in the pneumonia death-rate, though it is likely that the excessive pneumonia mortality characterising the whole of 1917 and 1918 was associated with fairly widespread prevalence of influenza.

MORTALITY FROM INFLUENZA SINCE 1847.

The course of influenza in this country from 1847 can be gathered approximately from the annual death returns as displayed in Fig. 4. A preliminary remark is required. Our national death statistics are the least imperfect in the world; but the accuracy must always necessarily be limited by the extent to which medical certification of the cause of death is satisfactory. In the earlier epidemics of influenza, including the outbreaks of 1890–93, there is strong reason for concluding that deaths from influenza were certified under the heading of the pneumonia or bronchitis secondary to influenza in a much higher proportion than in recent years. This probability is increased by the large mass of endemic influenza revealed in Fig. 4 from 1890 onwards, but almost absent in earlier years. The difference in part is probably a real difference, though probably not entirely so. Although much of this increased mortality registered from influenza may not really be this disease, we must, I think, assume that conditions since 1890 have become more favourable than in earlier years for the continuous prevalence of influenza endemically on a considerable scale.

FIG. 2.

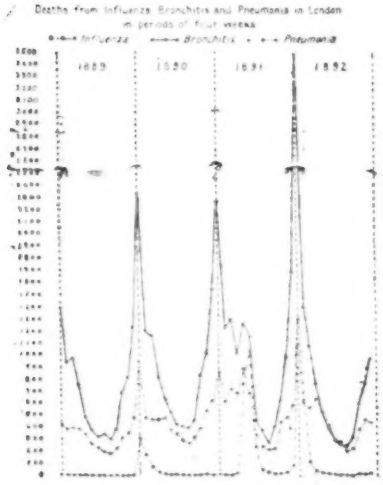
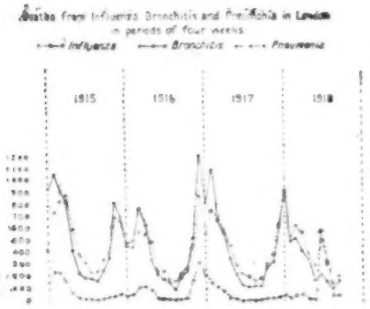


FIG. 3.



INFLUENZA, CEREBRO-SPINAL FEVER, AND PNEUMONIA.

I have introduced into Fig. 4 (scale five times that for influenza) a further curve showing the annual death-rate from cerebro-spinal fever since 1881. It is suggestive that this disease scarcely maintained a footing in England during 1881–1914, but since then has prevailed each winter epidemically, although each case as a rule occurred sporadically, in the sense of not being traceable to any other case of the same disease. This difference in the annual curves of influenza and cerebro-spinal fever does not appear to support the seductive hypothesis of Dr. Hamer that both these diseases may be diverse manifestations of the same virus.

On the other hand, Fig. 5 may be examined. This gives a comparison between the four-weekly incidence of cases of cerebro-spinal fever and of pneumonia in the British Army in the United Kingdom during the four years 1915–18. This curve is introduced by permission of the Director-General of the Army Medical Department. The two diseases are plotted out on the same scale, the scale being omitted. The cases are enumerated as first notified without subsequent correction, but this does not detract materially from the general value of the curves for comparative purposes. On the same diagram I have plotted the number of deaths from influenza in four-weekly periods in London. The two sets of figures, although derived from different sources, may be regarded as roughly comparable.

FIG. 4.

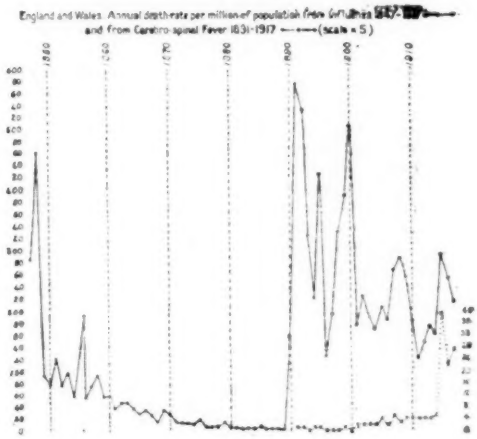
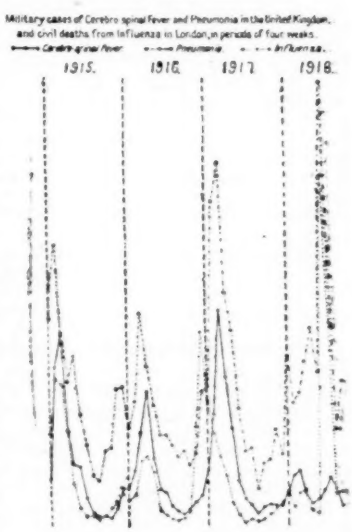

England and Wales. Annual death-rate per million of population from Cerebro-spinal Fever 1881-1917 (scale × 5)
1880
1890
1900
1910

FIG. 5.



There is shown a close correspondence in the curves of these three diseases during three out of the four years and there can be little doubt that the same winter and spring conditions favour excess under all three headings. The experience of 1918 is instructive. In this year influenza had an epidemic peak in July, and the deaths from pneumonia in the Army showed a corresponding peak. Cerebro-spinal fever, however, did not follow the two other diseases.

COURSE OF INFLUENZA MORTALITY IN LONDON.

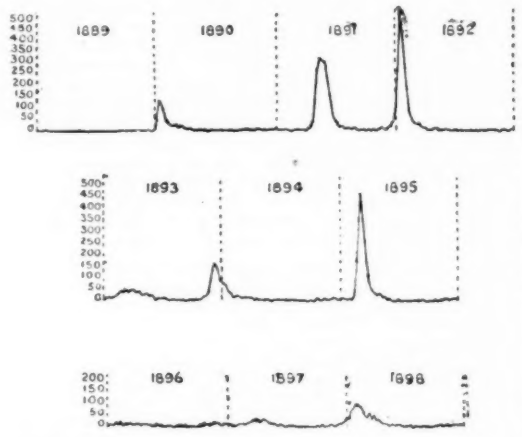
The course of influenza in this country from year to year has been shown in Figs. 1 and 4. Its weekly course, judged by weekly deaths from influenza registered in London, is shown in Fig. 6. Prior to 1890 deaths from influenza scarcely

figured in the death returns. From this year the course of events may be briefly summarised thus:—

1890.—An epidemic culminated in the third week of January. The epidemic peak occupied about five weeks, the excess of influenza gradually tailing off subsequently in this and in the later epidemics shown in Fig. 2. Between the peaks of this and of the next epidemic 70 weeks elapsed.

1891.—An epidemic occurred culminating in the twentieth week of the year. The epidemic peak occupied eight to ten weeks. Between the peaks of this and of the next epidemic 35 weeks elapsed.

FIG. 6 A.



1892.—An epidemic occurred culminating in the third week of January. The epidemic peak occupied six to eight weeks.

1893.—No great epidemic occurred, but some excess of mortality from influenza for several weeks in the early spring. A smart epidemic culminated in the fiftieth week of the year, the epidemic peak occupying about seven to nine weeks.

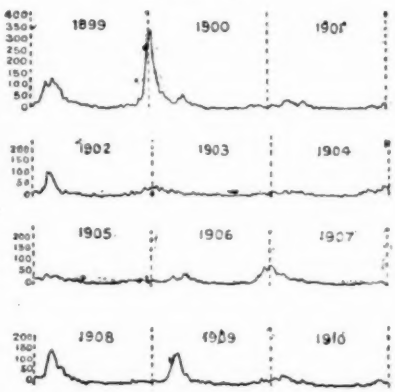
1894.—No epidemic, except the one beginning in 1893.

1895.—A large epidemic culminated in the tenth week of the year, the epidemic peak occupying 6–8 weeks.

1896.—No epidemic.

1897.—No considerable epidemic.

FIG. 6 B.



1898.—An epidemic occurred which reached its rather low maximum in the fifth week of the year. Its duration was somewhat protracted.

1899.—A somewhat similar epidemic to the one in 1898 culminated in the eleventh week of this year.

1900.—An epidemic occurred in December, 1899, and January, 1900, the greatest mortality occurring in the second week of January, 1900. The peak of this epidemic occupied six weeks, the mortality slowly tailing off. The interval between this and the preceding peak was 42 weeks.

1901.—No epidemic.

1902.—A small epidemic reaching its maximum in the eighth week of the year. The epidemic lasted six to eight weeks. An interval of over two years had elapsed between this and the last previous epidemic.

In 1903, 1904, and 1905 no epidemic of influenza occurred, though occasionally the weekly deaths from this disease rose slightly above the usual inter-epidemic level.

1906-7.—An epidemic occurred in December, 1906, and January, 1907, of low magnitude and somewhat protracted duration.

1908.—A smarter epidemic of influenza occurred, culminating in the ninth week of the year. Its duration was six to eight weeks, the tailing off commonly seen in other epidemics being shown in the curve.

1909.—An epidemic occurred with its maximum in the twelfth week of the year, similar in course and duration to the epidemic in 1908. The interval between these two epidemic peaks was 55 weeks.

1910, 1911, 1912.—No epidemics.

1913.—An epidemic of low range occurred with a maximum mortality in the twelfth week of the year.

1914.—No epidemic.

1915.—An epidemic similar to that of 1913 occurred, the low maximum being reached in the eighth week of the year.

1916-17.—A considerable low ranged increase of mortality was visible in the early part of 1916, followed by a relatively small epidemic, culminating in the last week of the year and terminating early in 1917.

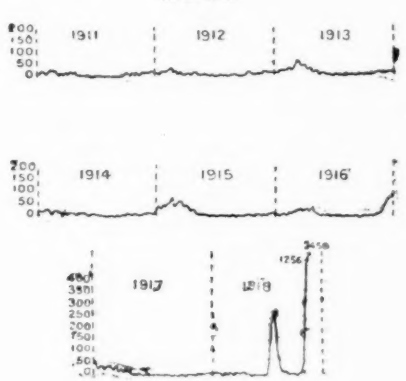
In the previous statement deaths only are dealt with, and I have selected the metropolis because for it we have an uninterrupted statement of weekly deaths from various causes for a long series of years. It will be noted, however, that London is a densely populated province, and that its epidemic curves represent the smoothed-out results of many local outbreaks which have rapidly become general.

The Pandemic in 1918.

Reference to Fig. 6 C shows that influenza during this year has followed a course never previously experienced. Until towards the end of June the London curve showed scant mortality from influenza, the number of weekly deaths between the eighteenth and twenty-fifth weeks varying from 5 to 10. There is evidence that prior to this influenza had been fairly widely prevalent, as it could not fail to be, inasmuch as during the spring of this year influenza prevailed seriously among both the Allied and enemy troops, and in Spain the epidemic of influenza had got well ahead in May. In July influenza was widely prevalent and was causing excessive mortality (see Fig. 5) not only in England, but also all over Europe, in the United States, in the great cities of India, and elsewhere.

I have not found another instance of a widespread epidemic culminating in the summer months (i.e., after June 22nd). The London curves, with this single exception, show that

FIG. 6 C.



since 1881 epidemic peaks have always occurred in winter or spring. Even in the epidemic culminating in July last streptococcal infection had been noted by various observers; and it is noteworthy that in American accounts of outbreaks of influenza in camps and in the civilian population of America during both 1917 and 1918 there were reports of this same preponderant occurrence of hæmolytic streptococci in the lesions and secretions. During the spring and throughout the summer of this year the usual endemic influenza probably was being almost constantly replenished by more virulent infection on a very large scale from overseas from both the American and European continents.

The further course of influenza in this year presents altogether exceptional, if not unique, features.

The curve shows clearly that in London after an epidemic causing excessive deaths during some six weeks in July and August—weekly deaths from influenza 10 (25th week), 67, 218, 287, 192, 86, 38 (31st week)—the weekly deaths declined, the deaths in each of the following weeks being 21, 20, 12, 12, 12, 14, 9, 17, 17.

In the 41st week occurred a sudden increase of deaths to 80, and then in following weeks the deaths numbered 371, 1256, 2458, and 2433.

Reference to Fig. 6 C shows that this experience, as already stated, is different from the experience in any preceding year.

The interval between the peak of the July epidemic of 1918 and of the smaller epidemic in 1916-17 was 80 weeks; the corresponding interval between the July and the October to November epidemic peaks in this year was about 16 weeks. This last-named interval is less than half of the interval elapsing between any two previous epidemic peaks of influenza in the metropolis, the nearest approach being 35 weeks' interval between the epidemic peaks of 1891 and of 1892.[3]

THE QUESTION OF A SECONDARY WAVE.

The Secretary of the Medical Research Committee in the *British Medical Journal* of August 10th, at the end of an annotation headed "Bacteriology of the Influenza Pandemic," asked bacteriologists in this country to send results of their observations during the epidemic—

"In order that the results gained here may be collected, with a view to the organisation of such coördinated work as may be found possible for the study of the secondary waves of infection that are to be expected."

This statement was, I fear, overlooked by many bacteriologists as it was by myself; otherwise many who did not know would, I am confident, have sent contributions for the common stock. But in some journals an attempt has been made to show on the strength of the above quotation that public health authorities, central and local, did not take all possible steps in anticipating and mitigating the present major epidemic of influenza.

Furthermore, in an answer to a Parliamentary question, the above cautious statement has been asserted to have included also a forecast that (*a*) the secondary waves would occur *in the autumn*, and (*b*) they would be more severe in character than the "primary wave of last spring."

No such forecast as (*a*) was made, and it would have been a foolishly wild guess, inasmuch as the present secondary wave occurred more than twice as early as any previous "secondary wave" recorded in the history of the metropolis. (I know of no other place for which equally minute and accurate statistics are available.)

That this is so is further shown by the following statement taken from the monthly Medical Supplement compiled by the Medical Research Committee, dated Oct. 1st, 1918:—

"It is, unfortunately, only too certain that a second and more severe wave of influenza will spread over Europe in a few months."

No special foresight is needed to anticipate that influenza, if it recurs in winter, will be a more serious disease than in July; but when this last statement, which, it may be observed, is inconsistent with other published statements, was made the "secondary wave" already was well on its way to an unexampled maximum, having caused during September serious mortality in South Africa, the United States, India, and some parts of Europe.

If the forecast in the last quotation is to be verified it will mean a further epidemic of influenza which has not yet materialised.

DIFFICULTY OF PREVENTIVE MEASURES IN WAR TIME.

The point would not be worth pursuing, except for the implication that more could have been done to avert the present pandemic; and it is only to elucidate this point that I make a further observation. Warnings of possible "secondary waves" in the presence of much endemic influenza, or immediately after a superadded epidemic has declined, would be useful if a prophylactic were available (none except one in the early experimental stage has been suggested), or, if by issuing advice the progress of an epidemic could be stayed. Neither of these conditions can be fulfilled. We are at present unable to prevent the spread of influenza by communal means, and the experience of every family invaded by influenza demonstrates the difficulty, amounting almost to impossibility, of preventing the spread of infection in the domestic circle.

Notwithstanding this, I did in my official capacity prepare in July last a memorandum for public use, but on the balance of considerations its distribution was not considered expedient at that time. There are national circumstances in which the major duty is to "carry on," even when risk to health and life is involved. This duty has arisen as regards influenza among the belligerent forces, both our own and of the enemy, milder cases being treated in the lines; it has arisen among munition workers and other workers engaged in work of urgent national importance; it has arisen on a gigantic scale in connexion with the transport during 1918 of many hundreds of thousands of troops to this country and to France from overseas. In each of the cases cited some lives might have been saved, spread of infection diminished, great suffering avoided, if the known sick could have been isolated from the healthy; if rigid exclusion of known sick and drastic increase of floor-space for each person could have been enforced in factories, workplaces, barracks, and ships; if overcrowding could have been regardlessly prohibited. But it was necessary to "carry on," and the relentless needs of warfare justified incurring this risk of spreading infection and the associated creation of a more virulent type of disease or of mixed diseases.

The same problem has arisen in connexion with crowded trains, trams, and buses. These doubtless are prolific sources of infection, but the service cannot immediately be increased, and meanwhile the vast army of workers must not be impeded by regulations as to overcrowding of vehicles in their efforts to go to work and to return home, and I have had no hesitation in recommending the Local Government Board to advise police authorities to this effect.

THE PROBLEM OF PREVENTIVE MEASURES IN TIMES OF PEACE.

But we may consider the preventability of influenza from the standpoint of possibilities in time of peace, and ask whether we are prepared to pay the heavy price in personal restrictions which its prevention—if even then it be possible—will necessarily imply until further means of prevention, so far undiscovered, become available.

The problem of preventing influenza is part of the wider problem of the prevention of the entire group of catarrhal diseases, with the added problem as to whether the occult causes of pandemicity of influenza can be discovered and their action averted. Hitherto we have no clue to these, and our only hope of improvement lies in means to be devised for preventing catarrhal diseases, by diminishing infection, by reducing susceptibility, or both.

The measure of our present impotence is given by the inability of medical science to ensure us against acute nasopharyngeal catarrh or a "common cold." I do not overlook the occasional "hits" of autogenous inoculation. A "common cold" does not appear in our national death statistics; but probably it is a more frequent cause of diminished efficiency, if not also of death, than any of the acute infectious diseases, with the possible exception of measles and whooping-cough, not only by occasionally initiating ear abscesses, purulent infections of the bony cavities of the skull and face and meningitis, but especially because of its common ending in chronic bronchitis, and because it opens the way for meningococcal, pneumococcal, streptococcal, and tuberculous infections. And yet we have no entirely trustworthy means of preventing common colds. The nearest approach to a general truth in regard to these colds is that life continuously in the open air secures relative immunity from attack.

An initial practical difficulty in such prevention is that the patient for several days may not fully recognise his condition, and it seems likely that infection is chiefly spread during these earlier stages. It remains true, however, as stated in my recent official Memorandum, that—

"If every person who is suffering from ..... catarrh ..... took all possible precautions, the present disability and mortality from catarrhal epidemics would be materially reduced."

UNKNOWN CAUSES OF PANDEMICS.

I have referred above to the unknown causes which, for instance, in 1803, 1833, 1837, 1847, 1890, and again this year, have been responsible for world-wide spread of influenza, limited in its rapidity only by the speed of human travel, and multiplying so rapidly as to create the illusion of almost simultaneous origin in many countries.

One somewhat improbable hypothesis is that nearly simultaneous enhancement of the potency of endemic influenza virus occurs throughout the world. A fair working hypothesis is to regard influenza as a specific infectious disease which is always present sporadically in urban communities, widespread epidemics of it only occurring when a more exalted strain of the same virus is introduced from without.

The source of the more exalted virus can only be guessed. If we were to confine our outlook to the present pandemic it

[3] I notice that Captain Greenwood, in THE LANCET of Nov. 9th, quotes the solitary experience of a small agricultural district in Weardale in 1891 as a further example of a July epidemic followed by an October outbreak. The scattered character of this district is more consistent with the view that two independent outbreaks occurred; furthermore, we are not concerned with village outbreaks, but with the general trend of national events.

would be easy to blame the vast meeting of men of different nations under circumstances of overcrowding in large masses in this and other countries, some of whom had had no previous opportunity of acquiring even temporary immunity. But such an explanation fails to explain the earlier pandemics, which spread apart from exceptional world movements.

In the 1890 epidemic foreign origin and rapid spread of imported infection undoubtedly occurred in this country; it is highly probable that in the present year events have pursued the same course.

It has been surmised that the accidental contact of the hypothetical influenza virus with a native population which has not had the opportunity to acquire relative immunity from attack or death leads to an enhancement of the virulence of the contagion, and that it is thus enabled to commence its travels. This hypothesis does not appear to me to be satisfactory. The initial experience of the Fijians in regard to measles will be quoted in support; but those who re-read Dr. Corney's original account of that outbreak, as I have recently done, will note that the early cases in this first outbreak in the islands of Fiji were mild in character, and that among portions of the population who were under hygienic and medical control the fatality was low at other stages of the devastating outbreak. Experience of measles in armies is that it is sometimes as serious as on "virgin soil." It was so in the war of North v. South, and it has been extremely severe in the present war. It is possible that this has occurred especially in New Zealand and other troops from the remoter parts of Britain and of Greater Britain; but the same troops were simultaneously suffering from massive invasion by Pfeiffer's bacillus, by streptococci, and by pneumococci. The excessive fatality of measles in warfare is explicable by the combined invasion of several viruses, without need for recourse to the hypothesis of a specially unprotected population.

The measles problem is very similar to the influenza problem. In both, so far as our present knowledge goes, the chief hope of saving life lies in preventing, or in diminishing, the mortality from the streptococcal and pneumococcal pneumonia in these diseases, and research work in these directions is greatly needed.

It is evident that we are ignorant of the causes of pandemics of influenza at irregular intervals, and their occurrence has never, so far as I know, been anticipated.

We are still obliged to think of unknown factors; and I can repeat the admission of similar ignorance in regard to cerebro-spinal fever made by me elsewhere:[1]

> In epidemic times "strains make their appearance which possess greater intrinsic capacity for invading the tissues than the strains current in non epidemic seasons. As epidemics are intermittent, this emergence of more virulent strains must be due to intermittent causes; and it is still necessary to assume the action of some unknown influence, telluric, climatic, or other, which becomes operative under conditions of which we remain ignorant."

INFLUENCE OF THE WAR.

But although no satisfactory explanation is known of the causes exciting either the minor or the major epidemics of influenza, there can be no doubt that the movements of the recent war have been responsible on a large scale for its increased virulence. During the summer months of this year migration from country to country, from America, Canada, Australia, New Zealand, and South Africa to England and France, was occurring each month to an extent of several hundred thousand persons; and migrations in the opposite direction were also taking place on a large scale. The voyages of these troops occurred at a time of submarine dangers with a necessarily limited supply of ships; furthermore, influenza and streptococcal pneumonia were previously prevalent in oversea camps; and it would have been surprising had not this marvellously rapid and successful transportation of troops been carried through at a heavy cost in communicable disease. There is no reasonable doubt that through these months contagia possessing enhanced virulence were being brought into this country. The circumstances, in fact, bear a close resemblance to those under which cerebro-spinal fever first became considerably epidemic in this country in 1915

In attempting to trace the course of influenza in the present year it must be noted that the story cannot be told completely until Army and Navy statistics and civilian statistics for many countries become available, and any views now stated may need revision as the result of further national and international information.

INCREASING CONTROL OF DISEASE.

It will be evident that we have a long road to travel before acute catarrhal affections can be brought within human control. The list of preventable and curable diseases has steadily lengthened. A first group of these comprises typhoid and typhus fevers and small-pox, which are entirely controllable and in large measure controlled. Dysentery, cholera, malaria, and plague also have their place in this group. A second group of partially controlled diseases comprises diphtheria and scarlet fever, although, like rheumatic fever, these diseases are subject to cyclical changes in distribution related to years of relative drought. Tuberculosis and syphilis are in the same group, and there is no adequate reason against their early transfer to the first group.

Measles, whooping-cough, acute poliomyelitis, and cerebro-spinal fever form a group in which infection appears to arise similarly to that of ordinary catarrhs and influenza, and their prevention so far similarly is only possible to a limited extent. For measles, whooping-cough, catarrhs, and influenza the chief present hope consists in attempts to diminish attack by or death from pulmonary complications.

DESIDERATA.

I may in conclusion indicate a few early desiderata in the investigation of influenza.

1. It would greatly facilitate further investigation if epidemic catarrhs, whether influenzal or other, were studied bacteriologically, especially in their early stages in selected populations—e.g., of institutions—and if a similar study were made of cases of bronchitis and of pneumonia in different localities and for a series of years. The work already begun by the Medical Research Committee will doubtless be of great value in this and other directions.

2. If such collective information is to have its maximum utility it will be necessary to ensure that observations by different bacteriologists are made by comparable methods.

3. The study of the epidemiology of influenza during the present war has been hampered by the necessary secrecy as to military and naval outbreaks, and by the failure of the ordinary international information coming into our official possession from consuls, foreign journals, &c. It will be possible partially to piece together the story of the present outbreak from the reports which medical officers of health have been requested to prepare; but information from the services will be needed to furnish a less incomplete story.

The civilian reports from different districts, so far as they have reached me, show a remarkable change in the age incidence of deaths from influenza during the present year; so much so as to have led to a not infrequently expressed opinion that we must be concerned with a different disease. Dr. Stevenson, in his contribution to the present discussion, will throw further light on this and other points.

POSSIBILITIES OF CONTROL.

The control of epidemic catarrhs may be considered from the point of view of the prevention of attack, or the prevention of complications. The possibilities of prevention of attack pending further medical discovery are limited; but under peace conditions the avoidance of aggregation of large units, especially for sleeping, are among the obvious indications. Whether persons affected with catarrh will in the future submit to wear veils or respirators is doubtful; but nurses of influenza patients should adopt this precaution. The utility of prophylactic vaccines remains to be demonstrated.

The prevention of pneumonia by vaccines is a more hopeful possibility; and it is possible that greater attention to the hygiene of the mouth and naso-pharynx both before and during attacks of influenza would have good effect. The gentle irrigation of nose and throat with a weak saline or antiseptic solution appears to have succeeded in diminishing pulmonary complications in measles, and might be equally beneficial in influenza.

The present pandemic will not have been suffered in vain if intensive investigation is pursued on catarrhal diseases in general, and if these great causes of national disability and mortality are brought more nearly under control.

[1] Preface to Reports on Cerebro-Spinal Fever (Local Government Board, N.S., No. 114).

GENERAL PRINCIPLES IN THE TREATMENT OF INFLUENZA,

WITH SOME DETAILS APPROPRIATE TO TYPES OF CASES OCCURRING IN THE PRESENT EPIDEMIC.

BY SIR THOMAS HORDER, M.D. LOND.,
ASSISTANT PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL, ETC.

THE treatment of influenza by specific inoculation, by immune sera, and by specific drugs is very much a matter of *tot homines tot sententiae*. Time alone can adjudicate upon the claims made for a variety of remedies that are on trial during the present epidemic. I am not here concerned with any discussion or advocacy of these measures. More important for the time being, probably, than any one or any number of them is the promptness with which the general conduct of the case is established and the thoroughness with which it is carried out. Not only may these things be of vital importance to the individual patient, they are also of great importance to the uninfected public. *Every case of the disease treated upon sound general principles is a contribution to preventive medicine.* And every case in which these principles are neglected is a threat to public safety. In so far as the individual case is concerned, promptness and thoroughness do more than meet the actual indications of the moment; they give the patient confidence that he will "win through," and they often prevent by anticipation those dread complications, shorn of which the disease is not really alarming in its nature. The treatment of influenza, despite specific efforts at aborting the course of the disease, must be regarded as an "expectant" treatment. But in medicine expectancy should not connote inactivity nor an attitude of "wait and see." The line of treatment advocated in this short article claims no originality. It is merely an attempt to put in writing the actual plan of campaign resulting from an individual experience gained entirely at the bedside of a considerable number of patients, concerning whose treatment the writer has deliberated jointly with a number of colleagues. It is obviously open to much criticism, but it may be useful to some, not because their experience has been less, but because they may like to know the practice of someone else and compare it with their own. The dogmatic mode of setting down some of the points in the scheme of treatment is adopted merely for the sake of brevity and precision.

With the mild cases and, whether mild or not, with the cases running a brief and favourable course of two or three days, I shall not concern myself. Inasmuch as no one can possibly foretell which cases are going to follow this benign course, the treatment of the more severe type covers them. And it is well to enforce the warning that wisdom lies in considering any case at its period of invasion potentially a severe one, not to say potentially a desperate one. If this principle were followed, both by the patient before he seeks advice and by the doctor after he has first given it, the disease would lose much of its terrors. Handicapped as the practitioner is just now by great dearth of efficient nurses, and overloaded himself by work owing to the paucity of doctors left in charge of civilian practice, it must needs be that treatment is much less adequate than is desirable. It is all the more important to give precise directions to the friends, and to such nurses as may be available, including definite instructions as to what they should *not* do. I shall consider the principles of treatment and some details under four heads which are, I think, sufficiently clear not to require explanation.

(i.) *Severe Cases without Pulmonary or other Serious Complications.*

With the first symptoms of the disease order the patient to bed and keep him there until a week after his temperature has become normal, and only allow him to get up then if examination of the heart and lungs reveals no signs of disease. Choose the largest available room that is provided with good-sized windows and clear out of it all superfluous furniture. If the patient is found to have gone to bed in a very small room and a larger room near by can be used as the sick-room move him into the latter as soon as possible. Open the windows widely day and night, bad atmospheric conditions notwithstanding. Dispense with blinds and curtains. Disregard "light restrictions." Fortunately the authorities have now waived these. Despite this fact, however—so hard a thing is habit—it is quite common to find the benefits of an open window largely neutralised by a blind, and perhaps by a heavy curtain as well. Regard all screens with distrust, and arrange the bed near the centre of the room, far away from all cul-de-sacs. Aim at a room temperature of 60° F., obtained by an open fire if central heating is not employed. If the ideal of free ventilation with warmth cannot be secured, then warmth must be sacrificed rather than ventilation. *Not only does the neglect of proper aerotherapy seriously prejudice recovery in the event of pulmonary complications, it undoubtedly tends much to induce these. It is the most important point in the treatment of all cases.* Adjust the bed-clothes to the patient's temperature. Use sheets and blankets only; disallow down quilts and counterpanes; it is wise not to tempt the nurse or friends by leaving such things in the room.

Confine *the diet* to hot fluids, given frequently, and do not aim at "feeding up" the patient. Avoid meat extracts and strong broths. Thank the friends for their offers of turtle soup, advise acceptance of the gift, but keep it in reserve for the period of convalescence. Do not give alcohol during this early stage of the disease; in a simple febrile attack it is not required at all unless the patient is elderly. See that *the bowels* are well opened by a double dose of the patient's customary aperient; if he has none, give calomel gr. ½ every hour for four doses and follow this by a hot saline. Sponge the patient all over with warm water twice daily. Put no faith in *drugs* as specific measures, whether quinine, salicin, or what not. Give aspirin and Dover's powder, āā gr. x., as early as possible, and repeat in six or eight hours. Follow this by a simple diaphoretic mixture. If *headache* is severe in spite of this treatment, give phenacetin gr. v. with caffein gr. ii. four-hourly for four doses. If *the stomach* gives trouble and the tongue is foul, order sod. bicarb. and sod. sulphocarb., āā gr. x., with glycer. acid. carbol. ♏ x. and aq. menth. pip. ad ℥i. six-hourly, and be sure that the feeds are well diluted. For *vomiting*, when this is a feature of the case, reduce all feeds to a minimum, or abstain from them altogether for 48 hours, give minim doses of tr. iodi in one drachm of water hourly for six doses, and inject a pint of normal saline into the rectum twice or three times during the period of starvation.

The *distressing and ofttimes ceaseless cough* is generally the most difficult problem. A host of remedies is in use; the fact that they are legion is the best proof that none of them is very useful. Do not forget that local applications to the chest (*vide* (ii.)) are often of service in allaying cough. Remember also that when the origin of the cough is irritability of the upper air-passages inhalations of tr. benzoini co. (4 parts) with menthol or eucalyptus (1 part) are useful. Failing this a spray containing chloretone and menthol, āā 2 per cent., in liquid paraffin, may be used to the nose and throat. But these local measures are of little avail in the essential cough of the disease. I have found syr. coccillanæ co., syr. codeiæ, and linct. terp. heroin co. of some value. In the most intractable cases I prescribe syr. chloral ℥ss., ammon. brom. gr. x., ext. glycyrrhiz. liq. ♏xx., &c., four-hourly for four doses.

Sleeplessness calls first of all for a general review of the programme of treatment: ventilation of the room, control of pyrexia, posture in bed, the question of stimulants, &c. If none of these points seems capable of better adjustment, try a sedative draught containing ammon. brom. gr. xx. and tr. valerian. ammon. ♏ xx. If not successful, I use paraldehyde in drachm doses twice or three times during the night to secure a good sleep. The best cloak for its unpleasant taste is tr. quillaiæ and tr. aurantii āā ♏ xx. with water to one ounce. If vomiting is present, give the paraldehyde ℥ii. in normal saline solution ℥ii. as a rectal injection. As a last resort I use chloral hydrate gr. xx. (with ammon. brom.), believing it to be of less prejudice to the heart than any members of the veronal group and more efficacious than either trional or sulphonal. I avoid morphia for the treatment of sleeplessness or delirium; and the result of hyoscine, upon the only occasion I saw it used for the control of these troubles, was such as to put the drug wholly out of court as a therapeutic agent of service in this disease.

If, now, defervescence takes place, by crisis or by lysis, further treatment resolves itself into taking care to avoid relapse and into measures designed to restore nerve and heart

strength. These will not be discussed here. But there are two other possible types of case, over and above (i.), both of which tax the practitioner to the utmost. In some cases the two types are superimposed.

(ii.) *Intensely "Toxic" Cases, Tending to, or Actually Exhibiting, Hyperpyrexia.*

All the emphasis laid upon free ventilation must now be redoubled. Cradle the patient, as was formerly customary in typhoid fever with persistently high temperature. Failing this, insist upon very little bedclothes. *Remember*, and teach the nurse or friends, *that the thermometer, and not the patient's sensations, is the true guide to the amount of bedclothes and the presence or absence of hot-water bottles.* Sponge the whole body frequently with tepid water, and if the temperature is unaffected by this, use water at room temperature, or cooled below this point. Prevent the piling on of blankets after the sponging, because it is during the first hour or two *after* the sponging that the chief fall in the temperature occurs. Even good nurses often fail to understand this, and will complain that the sponging was ineffectual, the while one finds the patient's complaint of chilliness has led to the use of several blankets and some hot-water bottles. Should the temperature be obstinate yet—and in every case where it is 106° or higher—proceed direct to the cold pack, which must, if necessary, be prepared with ice-cold water, and repeated as often as is indicated by the thermometer. Do not fear "shock to the heart"; there is probably no shock to the heart so great as a continued state of hyperpyrexia. Even if pulmonary congestion is present, which, indeed, it usually is in all these severe cases, this treatment is not contra-indicated. Hot drinks are given frequently during these processes, and volatile stimulants including brandy or whisky. *Aspirin and all so-called febrifuge drugs must be rigidly excluded from the treatment during this phase of the disease.* Perseverance with these hydro-therapeutic measures, whose virtues have unfortunately been lost sight of to a great extent by the present generation of practitioners, will often be rewarded by great improvement in the facies, pulse, and nerve tone of the patient; it is certain that one of the gravest dangers in the disease may be largely averted by their means. Most of these cases require brandy or whisky to counteract circulatory failure, and nearly always they suffer from troublesome insomnia, which should be met as advised under (i.). Should the state of the heart give anxiety, the measures referred to under (iii.) in connexion with this organ must be resorted to. This type of influenza, occurring quite frequently during the present epidemic, responds in most encouraging fashion to prompt and careful handling.

(iii.) *The Pulmonary Type.*

The treatment of those complications of influenza which affect the respiratory organs—catarrh of the upper respiratory tract, bronchitis, lobar pneumonia, and pleurisy—follows in the main the usual practice when these diseases occur independently of influenza. By the "pulmonary type" of case I mean that class of patients in whom there develops quite early in the disease, even from the invasion stage in fulminating cases, intense acute congestion of the bases of the lungs, with cyanosis, persistent cough, the spitting of pinkish frothy mucus (it may be in large quantity), and cardiac embarrassment. So soon as the beginning of this trouble is detected it is well to use large local applications which combine moist heat with counter-irritation. If nursing help is available nothing is better than linseed meal and mustard poultices (linseed meal 8 parts, mustard 1 part), renewed every four to six hours until the skin is reddened. Choose the most congested part for the application, but ensure freedom of respiration by avoiding tight bandaging. Antiphlogistine is also good, as are equivalent preparations now obtainable at the chemists. The well-known Gamgee jacket thoroughly deserves its popularity, and, if properly made and fitted, it enables the patient to remain in a full current of air without fear of "chills." Requiring less skill than poultices, but not to be despised, are stimulating liniments, like camphor, chloroform, and turpentine, diluted with an equal quantity of oil, and used liberally. Do not wait for the arrival of signs of consolidation of the lung before embarking upon these local measures. In this type of case volatile stimulants, sedative expectorants, and diaphoretics are the most helpful drugs. Such are sp. ætheris co., the iodides in small amount, bromide and chloride of ammonium, tr. senegæ, tr. belladonnæ, and liq. ammon. acetatis. Avoid drugs that are apt to be depressing, such as antimony and ipecachuana. In most of these cases brandy or whisky is indicated in small and periodic doses. All feeds must be warm, despite the desire that patients sometimes show for cold drinks and for ice. The use of ammon. carb. is a vexed point; in any but small doses it sometimes tends to increase cough, and when there are little or no sputa the drug is of doubtful value. The treatment of cough has been considered already (*vide* (i.)). Oxygen should be given in all severe cases of this type of the disease, warmed by passage through hot water or alcohol.

The condition of the heart must be estimated more by the general state of the patient (facies, cyanosis, dyspnœa, delirium, posture) than by the pulse frequency. If unsatisfactory the volatile stimulants already employed must be supplemented by strychnine (gr. 1/30) and by camphor in oil (gr. iii. in 15 minims), injected alternately, the former subcutaneously, the latter intramuscularly, every six, four, or even two hours, according to the severity of the condition. If still further supplementary measures are needed the best appears to be strophanthin, gr. 1/500 in 15–20 minims of sterile normal saline solution, injected slowly into a vein of the ante-cubital fossa. This may be repeated in 8–12 hours.

In both of these severe types of the disease, (ii.) and (iii.), reliance must not be placed upon aperients to ensure good evacuation of the bowels. Enemata should be used daily, with as little disturbance of the patient as possible, and avoiding injections of large bulk. In this way the intestine, often in a state of paresis, is cleared of much toxic material and the patient's heart is relieved from the strain of an ordinary stool.

(iv.) *The Stage of Exhaustion.*

The fever having subsided and the acute symptoms passed, there is seen in many cases a state of extreme cardiac and nervous fatigue. This state requires great caution. If the patient attempts to overcome the condition by effort he risks either a relapse of his disease or an attack of heart failure, either of which may be very serious. Strict recumbency, perseverance with stimulants, and gradual increase in the quantity and quality of the food are the only measures needed to ensure complete recovery; at least, so far as the dangers of the disease are concerned. For even in the cases of extreme bradycardia that are occasionally seen (and the writer has met with a pulse of 30 persisting for five days in a boy of 17 years) the prognosis does not appear to be other than favourable.

THE INCIDENCE OF *BACILLUS INFLUENZÆ* (PFEIFFER) IN THE PRESENT INFLUENZA EPIDEMIC.

BY JAMES McINTOSH, M.D. ABERD.*

(*From the Bacteriological Laboratory of the London Hospital*, Professor W. BULLOCH, F.R.S.)

SINCE the discovery of the bacillus of influenza by Pfeiffer in 1892, towards the end of the 1889–92 panepidemic, there has been a considerable amount of discussion as to whether this bacillus is or is not the etiological agent of acute influenza. This controversy has continued during the present epidemic owing to the failure to demonstrate the organism in typical cases.

Cause of Conflicting Results.

An able and elaborate review of the investigations in this direction has appeared in the Medical Supplement to the *Daily Review of the Foreign Press* for October, 1918,[1] which clearly shows the widespread failure to demonstrate the bacillus of Pfeiffer with any degree of constancy. In fact, so numerous have been the failures that grave doubts are cast on the part played by the influenza bacillus as the causative agent of the present epidemic. Out of a large number of workers few found the bacillus with any degree of constancy. Matthews,[2] however, isolated the bacillus in every case (12) examined; Dietrich found it in his first seven post-mortem examinations; Bergmann isolated it in 15 out of 20 sputa examined. Since the above review was written, however, Evre and Lowe

* Working on behalf of the Medical Research Committee.

[1] Medical Supplement (compiled by the Medical Research Committee) to the Daily Review of the Foreign Press, Oct. 1st, 1918.

[2] THE LANCET, July 27th, 1918. [3] THE LANCET, Oct. 12th, 1918.

isolated it from 12 out of 14 sputa, while in Germany Neufeld and Papamarku,[1] Pfeiffer, Gotschlich, and Uhlenhuth report that in the more recent cases they have found the bacillus not infrequently. There are two possible factors concerned in the production of the negative results; either the bacillus of influenza is not present in the majority of cases or the methods and media used for its isolation are at fault. From the results given below we can at once dismiss the first contention; for the second there is more to be said, as the *B. influenzæ* belongs to the delicate group of hæmophilic bacteria which require special media for their isolation. Up to the present it has generally been supposed that ordinary laboratory media to which some blood had been added were sufficient. In fact, Davis stated that as small a quantity as 1 in 180,000 of hæmoglobin was all that was necessary.

Characteristics of B. influenzæ.

The bacillus of influenza is one of the smallest microbes visible, measuring 1 to 2μ in length; it possesses a considerable degree of "pleomorphism." At times it appears as a short thin rod with rounded ends, while at others it is so short that its appearance is that of a small coccus. The bacillus is Gram-negative and does not stain well with the majority of bacterial stains, best results being obtained with carbol-fuchsin. The bacillus will not grow on ordinary medium until blood or hæmoglobin has been added, and if the medium has been made slightly alkaline good growths can be obtained. In sputum large numbers of the microorganism may be present and at times almost uncontaminated with other bacteria. Often the bacilli are arranged in small groups, which are very characteristic. But a microscopic diagnosis of *B. influenzæ* is far from satisfactory, and in my experience only possible on a few occasions. At times the bacillus may present a bipolar appearance owing to the centre part not having taken up the stain properly. The colony on suitable medium may vary from a fraction of a millimetre to 2 or 3 millimetres in diameter. It is circular, flat, and translucent, in subcultures the growth is often confluent, and on trypsinised blood medium possesses a brown appearance. On pigeon blood agar the growth is much whiter. Then, unless the strain is subcultured at least every second day, there is a great tendency for it to die out.

I have thought it necessary to mention the above characteristics of the *B. influenzæ* in order that it may be seen what I have considered as its criteria. Forms which do not come up to the above standards have been rigorously excluded, and on this account it is quite possible that some of the larger forms rejected are really the so-called pseudo-influenzal forms of the *B. influenzæ*.

Present Investigation.

In the early summer of 1918 when the disease first assumed epidemic form in London material from a small number of cases and from post-mortem examinations was examined with unsuccessful results as regards the presence of *B. influenzæ*. In these investigations ordinary blood-agar (human blood) was employed. From this it was concluded, perhaps rather rashly, that *B. influenzæ* did not play an important part in the causation of the epidemic, and the matter was not pursued further. No single type of bacterium was found with any degree of constancy; in some it was streptococci, in others Gram-negative bacilli similar to the *B. bipolaris equisepticus*, and in a few a pleomorphic micrococcus morphologically and culturally identical with the coccus which Rosenow has described as constantly present in poliomyelitis. With the recrudescence of the epidemic this autumn, and bearing in mind the results achieved by Matthews with trypsinised blood, it was resolved again to investigate the condition. The successful results obtained with this medium are detailed below.

Media Employed

For the isolation of the bacillus I have used exclusively trypsinised blood-agar made according to the formula supplied by Captain S. R. Douglas. The directions are as follows: In a series of test tubes, containing 8 c.cm. of sterile normal saline solution to which has been added 0·25 per cent. of anhydrous sod. carbonate, is placed 0·5 c.cm. of sterile trypsin (Allen and Hanburys). The tubes are incubated to test sterility, and, if sterile, 2 c.cm. of blood are added to each. The tubes are then placed in the incubator and shaken from time to time until the blood is completely digested and of a brown colour. This will take at least 48 hours. The trypsinised blood-agar is then prepared by adding 1–2 c.cm. of the digested blood to 5 c.cm. of 3 per cent. agar.

For the purpose of growing the *B. influenzæ* in subculture this medium is excellent, but for the purpose of isolation the blood must be digested for a longer period, as it is only after 10–14 days incubation that the medium will be found to have developed its full inhibitory properties as regards the growth of other bacteria. This inhibition of other bacteria, as pointed out by Matthews, is, in my opinion, one of the most useful features of the medium. In fact, without this property the isolation of the *B. influenzæ* from post-mortem material on ordinary blood-containing media is almost impossible owing to its overgrowth by the other bacteria present. The selective power of this medium must be regarded as comparable to that of Löffler serum for the bacillus of diphtheria or milk for the bacillus of Welch.

Trypsinised blood medium has the disadvantage, however, that the influenza bacillus tends to die out on it very easily. For the purpose of keeping the strains going I have found pigeon's blood-agar most suitable. Pigeon's blood is added to sterile distilled water in the proportion of 1 to 10 and then 1 c.cm. of a sterile ¼ per cent. solution of anhydrous sodium carbonate added. The agar is prepared by adding 1 c.cm. of this laked blood to 5 c.cm. of melted agar.

Technique of Isolation.

For the isolation of the *B. influenzæ* from sputum, pus, or other pathological exudate a small platinum loopful of the material should be spread over a couple of trypsinised blood-agar slopes. In the case of throat swabs, the swab should be rubbed gently over a plate or a couple of tubes. The tubes or plates are then examined after having been incubated overnight, and the likely colonies picked off and subcultures and film preparations made. On this medium the young isolated colonies have a characteristic appearance and so can be picked off with considerable facility. For the purpose of identification the appearance of the bacillus, its size, the lack of affinity for stains, and the inability to grow on non-hæmoglobin-containing media were considered sufficient.

Types of Material Examined.

In this paper I have considered it unnecessary to give full descriptions of the individual cases examined, as it is proposed to do so later when a full acount of the investigations is made. A résumé of the main features of the types dealt with is given below.

(1) *Broncho-pneumonic cases.*—(*a*) Post-mortem material: In the first instance, examinations were confined to material obtained from post-mortem examinations. Samples for bacteriological investigation were taken from bronchial pus and from the affected lung tissue. In the majority of instances the lungs showed extensive changes. They were greatly congested and showed numerous broncho-pneumonic areas. The bronchial mucous membrane also showed considerable changes, while the smaller bronchi usually contained a certain amount of pus. The most striking feature is undoubtedly the great congestion of the lung tissue, and the areas of actual hæmorrhage. In fact, the whole appearance might be in most instances regarded as a hæmorrhagic broncho-pneumonia.

(2) *Acute broncho-pneumonia.*—In these cases the sputum was examined when obtainable and also any pathological exudate such as pleuritic fluids. The sputum from the different cases showed considerable variation, in some being thin and watery, although in the majority it was thick, mucoid, and tenacious, only in a few was it muco-purulent. In a large number it was distinctly rusty in colour. From a certain number of these cases blood cultures were made. The material was collected only from those cases which had a temperature varying between 100° and 103° F.

(3) *Acute uncomplicated cases.*—In this article the results given are limited to those cases where the posterior naso-pharynx was examined. Swabs were taken and incubated on hæmoglobin-containing media. The great majority of these cases were in the acute stage of the disease, before any definite pulmonary complications had developed. There was fever varying from 101°–104° F., great prostration, flushed face, suffusion of the eyes, but in no case was there coryza, although some had an irritating cough.

Results of Bacteriological Examinations.

(1) *Broncho-pneumonic Cases.*—(a) *Post-mortem material.*

Case No.	1	2	3	6	9	12	13	14	15	16	20	23	25	26	30	31	33	34	60
Result....	+	+	+	+	0	0	+	+	+	0	+	0	+	+	+	0	+	0	+

Total = 19 cases examined, positive 13 (68·3 per cent.).

\+ = Positive as regards the demonstration of *B. influenzæ*.
0 = Negative as regards the demonstration of *B. influenzæ*.

[1] Deut. med. Woch., Oct. 24th, 1918.

(b) *Sputum.*

Case No.	4	5	7	17	18	19	21	22	24	27	29	32	47
Result ...	+	+	+	+	0	+	+	+	+	+	+	+	0

Case No.	48	49	50	51	52	53	55	56	57	58	59	62
Result ...	+	0	+	+	+	+	+	+	+	0	+	+

Total of 25 cases examined, of which 21 cases were positive, making a percentage of 84·0.

(c) *Blood Cultures.*—Blood cultures were done on some ten of the above cases, and all proved negative as regards the presence of *B. influenzæ*. In two cases done shortly before death bacterial growths were obtained—in the one a streptococcus and in the other a Gram-negative coccus.

(2) *Acute Influenza.*—In this instance the posterior naso-pharynx only was examined.

Case No.	...	35	36	37	38	39	40	41	42	43	44	45	46
Result	...	...	+	0	0	+	+	+	+	0	+	+	0

Total 12 cases, of which 8 gave positive results (66·8 per cent.)

Altogether 56 unselected cases have been examined to date, and from these the bacillus of influenza was cultured on 42 occasions (75·0 per cent.).

Discussion of Results.

As regards the mere association of the bacillus of influenza with the cases examined the results speak for themselves. The percentage of positive results over the whole series was 74·5, although in the different groups the figures vary somewhat. In the case of the sputum from broncho-pneumonic cases the percentage was 84·5; in the post-mortem material obtained from a similar series of cases it was 68·3, while in the naso-pharynx of the acute uncomplicated cases the figure was 66·8. With more prolonged investigations I am sure the number of positive findings of the bacillus of influenza could be increased, as under the conditions of the present time one could only spare the minimum amount of time and labour necessary. In addition, there is the probability that a number of the clinical diagnoses may have been at fault as well as the pathological, which would tend to lower the percentage. The later error, however, can be adjusted when histological examination of the post-mortem material has been completed.

Relative Frequency of Other Bacteria.

In this article it will be sufficient to indicate the relative frequency of the other bacteria found in the cases. On the whole, film examinations have given the impression that Gram-negative bacteria have a tendency to predominate in a good number of the cases, and cultural examinations have confirmed this. Gram-negative diplococci were present on numerous occasions; while cultures showed that some of these belonged to the meningococcus type, more frequently these cocci were of the *Pharyngis siccus* type. In others large Gram-negative bacilli belonging to the coliform group were present, some of which proved to be the *Bacillus proteus* and others the *Bacillus pneumoniæ* (Friedländer). In addition, especially in the naso-pharynx of acute cases, a small Gram-negative bacillus rather larger than the influenza bacillus was isolated. This bacillus was identical with one isolated during the summer epidemic, and was distinctly bipolar in type, with rounded ends. At times the stained bacillus presented an appearance not at all unlike that of the *Bacillus pestis*.

Of the Gram positive bacteria, the most frequent were staphylococci, both aureus and albus, then streptococci, and lastly pneumococci. In this series a marked feature has been the absence of pneumococci in the various sputa examined, and in not more than two cases were they present in such numbers as to lead one to infer that they played an important part in the process. Of four pleuritic fluids examined two gave growths of a fine streptococcus, one a pure culture of pneumococcus, and one a pure growth of *B. influenzæ*. The slimy condition which the lungs develop in many cases after a short exposure to the air is apparently due to the *B. proteus*.

The Rôle of the Bacillus in Etiology.

Unlike the influenza bacillus, these various other bacteria do not predominate with anything like the same degree of constancy. These results, however, do not in themselves prove that the *B. influenzæ* is the cause of influenza, but only that this bacillus is present in the majority of the cases. One must bear in mind that the mere association of a micro-organism with a particular disease does not entitle one to describe it as the cause. For the purpose of illustration it is sufficient to mention the *Bacillus suipestifer* and hog-cholera, or *Bacillus proteus* (Strain X.) and typhus fever. The constant presence of the bacillus of influenza is suggestive that it plays an etiological rôle in the production of the condition known as influenza. Conclusive evidence can only be produced as the result of further experimental work.

In acute influenza there is probably an invasion of the respiratory tract by the influenza bacillus, their growth is accompanied by the production of toxic bodies, which injure the mucosa and on absorption produce a general malaise. In the more severe cases the fine bronchi and the alveoli of the lungs are affected. In the latter the walls of the capillaries, as well as the walls of the alveoli, are injured, with the result that a serous exudate takes place. In parts this exudate completely fills up the alveoli, and on this account sections of the affected lung produce a picture strikingly like that produced by phosgene poisoning. The second stage of the disease consists of an infection of the damaged tissues and serous exudate, with one or several of the pathogenic bacteria which are to be found normally in the respiratory tract. Thus a secondary septic broncho-pneumonia is set up.

In conclusion, one must admit that the almost constant presence of the bacillus of influenza is suggestive of an etiological rôle, and that prophylactic inoculations against this organism might be successfully employed to combat the disease.

Further, I wish to express my indebtedness to Professor Bulloch for his interest and advice on many points.

PROVISIONAL NOTES

ON THE PATHOLOGY OF THE PRESENT EPIDEMIC.

BY P. FILDES, M.B., B.C.,
HONORARY SURGEON-LIEUTENANT COMMANDER, R.N.V.R.
(*Working in the Navy on Behalf of the Medical Research Committee*);
S. L. BAKER, M.R.C.S., L.R.C.P.,
TEMPORARY SURGEON-LIEUTENANT, R.N.;
AND
W. R. THOMPSON, M.Sc. CORNELL.
(*From the Laboratory, R.N. Hospital, Haslar.*)

THE arrival and progress of the influenza pandemic in London appears to have been unexpected among the population and to have caused a certain extent of dismay. The curious isolation of different communities due to the difficulty of travel and the absence of press facilities has put back the distribution of common knowledge to what it was a hundred years ago. It is possible to read about occurrences in South Africa or Bombay, but news from towns in this country only filters through gradually and often in a distorted form. Thus, while the influenza epidemic has been proceeding sporadically or acutely in Portsmouth for months, the fact has hardly been referred to outside.

Here in Portsmouth the disease has been more or less endemic since the outbreak of "Spanish influenza" in the spring. Pneumonia since that time has been prevalent in the Navy, but since that time it has been certainly more prevalent than usual, and has been the subject of considerable inquiry and study. The number of cases of empyema was remarkable. In these were found not only pneumococci, but also in many cases hæmolytic streptococci, which gave all the ordinary reactions of *Streptococcus pyogenes*.

The general opinion at that time was that the cases were due primarily to either of these organisms or, indeed, to other "respiratory" organisms, since *Streptococcus viridans* and *Streptococcus mucosus* were sometimes met with. It was the general impression that "respiratory" bacteria had taken on an increased virulence, owing to the somewhat unsatisfactory weather and the presence of large numbers of young "new entries" in the barracks. The cases were very largely confined to these young "new entries."

The question of influenza as a factor in the disease was discussed and studied, but owing to the complete absence of bacteriological support the causative importance of this bacillus was discredited.

At the end of August, however, an acute alteration took place in the aspect of the disease. The cases among "new entries" became more and more numerous and the clinical aspect more and more acute. It became obvious that a serious epidemic had broken out. Large numbers of cases of acute pneumonia were admitted to hospital, and among these the death-rate was very high. Localising signs such as empyema became less frequent; indeed, death occurred before these could develop. The outstanding feature of the disease was an acute septicæmia of a particularly fulminating type.

At that time the epidemic was very largely confined to the young naval "new entries," and this fact, together with the unusual symptoms, led to all manner of curious suggestions as to its origin. It was even suggested that the disease might be pneumonic plague, while, of course, the foolish seized upon "vaccination" or "inoculation" as the cause, without considering whether either of these protective measures had been already carried out or not.

As the epidemic progressed the age-incidence became widened and all types of men became affected, and finally, as was inevitable, the civil population came under its influence. Clinically, it became more obvious that the acuter symptoms were nearly always preceded by "catarrh," and the question of influenza as the initial infection again came into prominence. Bacteriologically, however, we were unable to obtain any evidence of this; neither in the sputum nor in throat swabs could we find influenza bacilli. Large numbers of cultures and microscopic examinations, post mortem, were equally unsuccessful. In the trachea, lungs, and blood we now found almost exclusively the same hæmolytic *Streptococcus pyogenes*.

We were therefore inclined to the view that this must be a primary streptococcal pneumonia, although it was obvious that the objections to such a view were serious. On the other hand, we were conscious of the fact that the demonstration of influenza bacilli is at all times difficult, and particularly so under the septic conditions which were before us, and therefore when Dr. John Matthews[1] published his technical method for growing *B. influenzæ* we at once went into the question further.

Among the first cases examined with a digested blood medium comparable to Matthews's, we obtained cultures of *B. influenzæ* mixed with large numbers of streptococci from the tonsil after death. In subsequent investigations, using a medium founded upon that of Levinthal (which we refer to as "K" medium) we have found influenza bacilli in so many men suffering from influenza without pneumonia, and in the organs of men dying from pneumonia, that we are of opinion that it is unnecessary to look further than this organism for the cause of the epidemic, the streptococci and the other organisms which have been mentioned being only secondary infections upon lungs already affected by *B. influenzæ*.

The difference in the bacterial flora obtained by the use of these media is so remarkable that we are prepared to admit that our earlier conclusions were incorrect, and that *B. influenzæ* was probably the real cause in most of the cases of pneumonia which have been occurring during the last six months. Under these circumstances it may be an assistance to those who still implicate various streptococci or who are discussing the possibility of an "invisible virus" to have our tentative results so far as they can be carried when half our staff is sick.

Ante-mortem Findings.

We have examined the naso-pharynx in 15 cases of influenza in whom there were no obvious signs of pneumonia, and in 12 have isolated *B influenzæ*. Several of these patients later developed a fatal pneumonia, but, unfortunately, no autopsy was permitted. In each case we have made only *one* culture, and the number of positive results would, undoubtedly, have been much higher if we had made several examinations or if we had been working the whole time with a satisfactory medium. Sometimes the growth has been profuse, but more often a few colonies only develop among the numerous Gram-negative cocci, pneumococci, and streptococci.

We have also examined the naso-pharynx of 71 men who were apparently healthy and obtained 15 positive cultures This finding has an epidemiological interest.

Single samples of *sputum* have been examined from 106 cases and *B. influenzæ* has been found in 45.

[1] THE LANCET, 1918, ii, 104.

Influenza bacilli can often be cultured from sputa in which it is difficult or impossible to recognise them microscopically. In a small number, however, bacilli were so numerous and pure that they could hardly be missed even by Gram's stain, and we are satisfied that we did not overlook cases of this type in the earlier months of the epidemic. In the great majority of the sputa, including those in which copious growths are obtained, the microscopic picture is inconclusive so far as *B. influenzæ* is concerned, but pneumococci and streptococci abound as usual. It is true that with a very intense stain, such as that which we call "multicolour blue," a few minute bacilli may be found, often in clumps, but we very seldom get a picture which convinces us that influenza bacilli are present, and the subsequent copious growths are often surprising.

We have made *blood cultures* from a number of men with pure influenza with negative results, and similar negative results have been obtained with the *urine*.

Post-mortem Findings.

(*a*) *Macroscopic pathology.*—The post-mortem appearances of a rapidly fatal case will best indicate the type of disease with which we have been dealing here.

Externally: The body of a well-developed muscular young man, aged 18; marked cyanosis of lips and finger-nails; a quantity of blood exuding from mouth. *Thorax:* 200 c.cm. of deeply blood-stained watery fluid in left pleural cavity. A trace of similar fluid in right chest. The parietal pleura on both sides is injected and shows scattered purpuric patches. The *pericardium* contains a little clear blood-tinged fluid. The *heart* shows nothing remarkable beyond hæmolytic staining of the endocardium; the heart-muscle is firm and appears in good condition. *Left lung:* The lower lobe is a dark purple colour and shows a fine fibrinous roughening in places; it retains its shape on removal and is heavy; it feels soft and jelly-like, with several firmer areas 2 or 3 cm. in diameter scattered about in the lung substance. The upper lobe is similarly affected in its posterior part, but in the anterior portion it is spongy and feels aerated. On section the lower lobe is dark-red colour and airless, being full of a thin hæmorrhagic exudate which flows out from the cut surface. In the places corresponding to the firmer portions described above there are found solid, dark-red, rather dry areas. Some of these extend to the surface of the lung and resemble infarcts in appearance; others, however, are more or less spherical masses situated centrally in the lung. The lower part of the upper lobe is similarly infiltrated by a thin hæmorrhagic exudate, but the upper part is aerated and shows a congested spongy lung substance. The *right lung* is less affected than the left, the upper lobe being aerated and showing a red spongy surface. The bronchial tree throughout the lungs is intensely injected and contains bloody fluid which pours out into the trachea. The naso-pharynx, pharynx, larynx, and trachea are much injected. This injection is most marked in the trachea, especially in the lower part, which is a dark purple colour. The tonsils are prominent and injected and contain a few beads of pus. The cervical and paratracheal glands are injected, the latter being a dark purple; the gland below the tracheal bifurcation is enlarged and very soft and hæmorrhagic, as are the glands at the hila of the lungs. *Abdomen:* Peritoneum and intestines appear normal. Spleen not enlarged. On section, slightly swollen red pulp. *Kidneys:* Cortex rather opaque in appearance, slightly swollen, no hæmorrhages or other abnormalities detected. *Suprarenals* show dark plum-coloured medullæ, the left being the most affected. *Bladder, &c.:* Nothing remarkable. *Brain:* Some injection of smaller vessels upon the cerebral cortex. No signs of meningitis. No hæmorrhage.

The above is a rapidly fatal case showing no reaction to the infection. The patient appears to have been drowned by the exudate into the lungs rather than killed by the septicæmia.

In cases of longer standing there has been, in addition to the hæmorrhagic condition, a marked broncho-pneumonia with pus in the smaller tubes, and sometimes areas of grey hepatisation, as seen in lobar pneumonia. In several cases there has been a purulent bronchitis and peri-bronchitis, the lung presenting a marbled appearance owing to the purulent infiltration of the bronchial walls; the purulent infiltration can also be seen on the surface of the lung as a white peri-lobular network. Empyema is very common, there being, as a rule, a thin yellowish opalescent fluid with a sediment of thicker pus in the most dependent part. Pyopericardium is frequent. The spleen shows evidence of reaction, being enlarged and having a swollen, often diffluent, creamy or dark-red pulp. The kidneys often show severe parenchymatous degeneration, but in only one case

has there been an obvious nephritis. In a few cases dying ten days or so after the onset of the disease the heart muscle appeared considerably affected, being very flabby and having the appearance of parenchymatous degeneration.

(*b*) *Bacteriology.*—The organism which is immediately responsible for the above pathological picture is a hæmolytic streptococcus; it does not ferment inulin, and grows in long chains as a sediment in broth. It is found in enormous numbers in the lungs and in the pleural and pericardial pus when this is present. From the blood it can be obtained post mortem, usually in pure culture. The coccus, though forming long chains in fluid exudates, often shows diplococcal forms in the tissues, so that it cannot always be recognised as a streptococcus in films. At the beginning of the epidemic this streptococcus was the only organism of importance which could be recovered from the tissues or blood of the cases examined; when, however, the new media became available for the investigation of the cases it was possible to prove, what had already been suspected, that the influenza bacillus was the real cause of the disease.

Previous to the adoption of these media much time was spent examining films from the lung exudates, scrapings from the trachea, &c., without obtaining any evidence of the presence of the influenza bacillus In the first case in which the bacillus was demonstrated it was found in pus from the enlarged tonsils, and in this it could be seen, with appropriate staining as described elsewhere, in large numbers, chiefly intracellular. Although in this case films from all parts of the respiratory tract were examined, the bacilli could not be detected anywhere else and streptococci in enormous numbers dominated the picture. At the present time we are obtaining cultures of *B. influenzæ* from every post-mortem examination upon these pneumonia cases. In the lungs the bacilli are obtained with certainty only from the most healthy parts; the obviously diseased portions are so full of cocci that the bacillus has apparently been exterminated and its detection has generally been impossible. It is obtained fairly constantly from the trachea and bronchi; in the case of the bronchi those in the healthier parts of the lungs yield the best results. Pus from the deeper parts of the tonsils gives on culture scattered colonies of *B. influenzæ* amongst innumerable streptococci. In one case a culture from blood taken from the jugular vein yielded a few colonies of *B. influenzæ* and a copious growth of streptococci.

When now these bacteriological findings, ante- and post-mortem, are reviewed as a whole, taking into consideration the essentially superficial nature of many of the examinations and the difficulties met with in the preparation of a very delicate medium, it appears justifiable to us to suggest that *B. influenzæ* is very frequently present in the respiratory passages before death, and is present in the lungs and sometimes the blood after death so frequently as to suggest that the disease is constantly associated with and due to a *B. influenzæ* infection.

The Cultivation of B. influenzæ.

The classical blood-agar medium for the growth of influenza bacilli has been practically useless to us under the conditions met with.

We have already mentioned that we first used a digested blood medium akin to Matthews's, but we gave it up in favour of Levinthal's, which is simpler to prepare. We have had no opportunity to study the original description of this medium, but have worked entirely upon the reference to it in the Medical Supplement to the *Daily Review of the Foreign Press* (Oct. 1st, 1918) compiled by the Medical Research Committee. The principle of this medium is the addition of fresh blood to a flask of melted agar in a proportion of 1 in 20. The medium is brought to the boil and the coagulum aseptically filtered off "through gauze or paper."

There are factors in the preparation of this medium which are still obscure. We have several times made up batches which are entirely useless; indeed, we have made up two batches from the same materials and at the same time, and one has been excellent and the other useless. We are almost satisfied that the factor in these cases is the filtration through "gauze or paper." Neither of these substances should ever be used, but *glass-wool only*, presumably because the paper absorbs the essential "vitamins" (Jordan Lloyd).

We have not yet decided whether the blood must be *fresh*. We use citrated ox or sheep blood and find this to be satisfactory if collected once a week. Whether a "stock" citrated blood, laked with distilled water and sterilised with chloroform, according to the technique of one of us, is suitable we are not yet certain.

The technique of preparation of "K" medium is simple.

A flask of ordinary 2 per cent. meat agar is melted and reduced to 55° C. The agar need not have been "egged" or cleared in any way. One part in 20 of whole blood is then added and the flask placed in a water bath at about 60° C. The flask is constantly shaken while the water rises to the boil, and when this occurs it is left at rest for 10 minutes at the boiling point. In the meantime a flask carrying an ordinary filter funnel lightly packed half full with glass wool has been autoclaved. The boiled agar-blood mixture is poured through this wool without shaking and, if necessary, left in the steamer. Usually the filtration takes only a minute or two and the medium is then poured aseptically into a number of sterile tubes and sloped. No contaminations need arise during these manipulations.

The effect of this medium upon the growth of *B. influenzæ* is very remarkable. This bacillus is familiar to us as producing characteristic pin-point colonies on blood agar. The colonies grow no larger and seldom coalesce. On ordinary agar, the bacillus does not grow at all, but merely by adding the soluble products of a small quantity of boiled blood the growth on agar becomes as profuse and as confluent as the growth of typhoid. The size of the colony depends entirely upon the spacing. The common size is 2 mm., but when colonies are well isolated they often attain no less than 5 mm. The growth recalls that of meningococci on serum agar, but is more transparent. Against a dark background the colonies are also somewhat bluer. They are very easy to distinguish from streptococci or pneumococci. The growth is very readily emulsified to form a stable suspension.

The Identification of B. influenzæ.

The microscopic appearance of *B. influenzæ* upon "K" medium is very characteristic. It is very small and thin The bacillus is usually so short that it resembles a coccus. The longer bacillary forms which are familiar upon blood agar do not develop on "K" medium. Films made from the larger colonies a few days old show a curious degeneration of the bacteria. They have largely broken up into an amorphous débris in which individual bacteria are hardly recognisable, but subcultures from such colonies yield normally profuse growths. The viability of these bacteria appears to be quite prolonged. Even on slope cultures on "K" they live for several days, sometimes for as much as a week, and in capped "stab" cultures in "K" all our strains survive 15 days at least.

The affinity of *B. influenzæ* for stains is feeble, and this constitutes one of the chief difficulties in its demonstration. It is, of course, negative to Gram, but the affinity for the counter stain is so feeble that this method is useless for its detection in pathological material. The stain which we have found most satisfactory is a methylene blue preparation akin to polychrome-methylene blue, which we call "multicolour blue." We made this stain by dissolving 10 g. of methylene blue in a litre of 1 per cent. sodium bicarbonate solution and steaming for two hours. A few drops of this stain are placed upon the slide and this is then heated until steam arises. In the case of a pure culture the stain is then rinsed off and the slide dried, but when dealing with a pathological exudate the slide, after rinsing, should be momentarily placed in alcohol which contains one drop of glacial acetic acid per 100 c.cm. It is then rinsed and examined.

There are at present no specific tests which can be applied to identify *B. influenzæ*. We rely upon the morphological appearance and the growth on blood agar, with an absence of growth on ordinary agar. Most strains grow with the typical discrete, pin-point colonies on blood agar, but some develop rather larger confluent colonies up to 1 mm. The bacillus is, of course, non-motile. Fermentation reactions are now being studied and attempts are being made to prepare agglutinating serum. Rabbits will tolerate very large doses, even two slope cultures of living bacilli.

Prophylaxis of Influenza.

It appears to us that the only practical measure which is likely to be effective to control the present epidemic is a prophylactic vaccine treatment. In instituting such a measure it is necessary to decide whether it is more profitable to attempt to prevent the onset of influenza or to

prevent the complications which are the cause of death. On all grounds we consider that the former is the more satisfactory aim, since if the influenza can be prevented the complications will not arise. Therefore, we consider that *B. influenzæ* should be the main basis of the vaccine. We have already prepared large quantities of this vaccine and have experimented with it on volunteers.

The question of the dose to be employed must be governed by several factors. It must not be so large that a danger of a pronounced negative phase will arise, because this would be dangerous when the epidemic is already present and sources of infection are universal. Neither must it be too small to be effective. Further, it is undesirable to produce marked local reactions, since these would create too much dislocation in the carrying on of employment. We are not in favour of giving two doses only, because if these are large enough to be effective a negative phase may follow. We therefore subdivide the first dose into two and give three.

The spacing of doses which we have adopted for the moment is fairly short. The first dose is given on the first day and the others on the fourth and eighth. The quantities given are 50 million, 166 million, and 500 million. The second dose gives rise to some local reaction, and it is possible that the third will have to be reduced.

It has been decided that these vaccines shall be used only upon volunteers, and, since the allegations which have already appeared in certain sections of the press will probably militate against men coming forward, we wish the immediate effects of the vaccine to be as mild as possible; otherwise we are afraid that this process, which may well be followed by excellent results, will be discredited and never receive an adequate trial.

THREE CASES OF MALIGNANT DISEASE OF THE UPPER EXTREMITY.

BY J. W. GEARY GRANT, F.R.C.S. ENG.,
ACTING ASSISTANT SURGEON, KING EDWARD VII. HOSPITAL, CARDIFF.

THE following cases of malignant disease in the region of the shoulder present, I think, some points of interest.

Case of Berger's Operation.

The first case, one in which several limited operations had been performed for an epithelioma of the hand, where ultimately the disease had extensively involved the axillary glands and lymphatic vessels, demonstrates the advantages which Berger's operation gives in sweeping away, without a difficult, tedious, and possibly incomplete dissection of the axilla, all possibly infected tissues.

CASE 1.—Patient aged 43. In 1894 suffered from abscesses about both ankles, presumably tubercular. Various operations were performed at different hospitals, and in 1898 a sore formed on the back of the left thumb, which he attributes to a scratch becoming infected whilst dressing his foot. In 1902 the left foot was amputated at Bristol by Mr. R. G. P. Lansdown, and he has had no further trouble with the lower extremities. The sore on the thumb refused to heal, and in October, 1907, X ray treatment was begun and continued at the various places where he resided for over a year. In all, some 50 exposures were given. In February, 1909, he consulted me, and as far as I remember now, there was an indolent ulcer with smooth red surface on the terminal phalanx of the left thumb on its dorsal aspect, the surrounding skin showing numerous minute telangiectases. The sore healed under applications of scarlet red ointment. In October, 1913, it again broke down, and in May, 1914, as it showed no signs of healing, I amputated at the interphalangeal joint by a palmar flap. He had no further trouble until October, 1916, when a blister formed at the end of the stump. Early in 1917 it showed the obvious appearance of the epitheliomatous ulcer, and was amputated through the carpo-metacarpal joint. Recurrence promptly followed in the scar, and a hard cord was found running up the lower part of the palmar aspect of the forearm on the radial side, which on examination was found to be a lymphatic vessel filled with carcinoma cells. The original ulcer on examination was a squamous-celled carcinoma. I then amputated the forearm just below the elbow, removing all the fat and the epitrochlear gland. Glands from the axilla and the cephalic gland, removed for examination, showed no signs of malignancy. In May, however, glands were felt in the axilla. He was admitted to the King Edward VII. Hospital and operated on with the intention of clearing the axilla, but as soon as an incision was made it was obvious that this was impossible. There was an extensive glandular involvement and a large thrombosed lymphatic vessel the size of a large crow-quill was found running by and adherent to the axillary vein. His consent to amputation had not been obtained, and the wound was closed. I felt that a Berger's operation held out the best chance of a radical operation and I decided to perform a fore-quarter amputation.

Three days later, under open ether, and after a preliminary injection of morphia, I made an incision over the clavicle and resected the middle third with a Gigli's saw. The pectoralis major was separated and the subclavius divided and the neuro-vascular bundle exposed. The artery was ligated at the junction of the axillary with the subclavian (this was lower than it should have been). The arm was elevated to empty it of blood, and the vein secured at the same level. The three cords of the brachial plexus were

FIG. 1.—Shows smooth rounded outline of shoulder with almost linear scar, well on front of chest owing to absence of pectoro-axillary flap.

injected with a 4 per cent. solution of novocaine, and after a few minutes divided. The original incision was carried out along the acromion and spine, and then down to the posterior axillary fold. This was joined by another passing from the mid-point of the clavicle in a curve with the concavity outwards so as to leave practically no anterior flap, the object being to get as far away as possible from the infected axillary contents. Similarly, the pectorals were divided well inwards and reflected with the fascia over the serratus magnus, which was divided a little further out. The cervico-dorsal flap was then reflected, the trapezius, levator anguli, and muscles attached to the posterior border of the scapula divided, the transversalis cervicis and supra-scapular arteries secured, and the limb removed. In spite of the absence of the pectoro-axillary flap there was ample skin covering. There was very considerable shock, which was treated by continuous rectal saline and the usual methods, and the next day his condition was very good. The wound healed by first intention.

A month later, glands having been found in the neck, an incision was made from the mastoid to the clavicle and outwards to the trapezius, which was partially reflected, and the whole of the fat and glands removed *en bloc*. These showed evidence of infiltration with carcinoma. At the end of August a small lump was found near the anterior border of the trapezius and was removed. From June to the present date he received 25 exposures to X rays. So far no further signs of the disease have manifested themselves, and he has been for the past six months carrying on his ordinary duties. Fig. 1 shows his appearance.

Case of Amputation at the Shoulder.

About the same time I had the following case in hospital.

CASE 2.—Patient had a very extensive carcinomatous ulcer arising in the scar of a large burn involving the greater part of the skin of the right upper arm. I amputated at the shoulder, having to make irregular flaps extending on to the chest, as the scar trenched on the axilla and chest wall. The skin covering was not adequate, and part of the wound healed by granulation. The difficulty of feeling sure the axilla was completely cleared in this case afforded a marked contrast with the last, where everything was swept away *en bloc*, without a tedious dissection. Here one had to think about getting flaps to cover the stump of the scapula and acromion. The shock was certainly not so great, but I feel that Berger's operation would have been the better procedure.

The man received seven exposures to X rays in as many months, the limited number being due to the distance at which he lived. He reports that he is in perfect health at present.

Berger's Operation.

In Berger's operation fat, glands, and muscles with their fascial lymphatic network are swept away in one piece, and this entails the minimum risk of cutting through infected tissues, and therefore fulfils the principal canon in the surgery of malignant disease. The cosmetic result (which, as a matter of fact, should not enter into consideration) is, I think, at least as good as in amputation at the shoulder joint, and retention of the shoulder-girdle is of no functional importance. In either case if an artificial limb is worn it is for appearance only.

The operation itself, a somewhat formidable one, has, according to Keen, a mortality of 6 per cent. The indications given by Jacobson and Rowlands and in other works are (1) certain cases of malignant disease too extensive for amputation at the shoulder; (2) certain cases of injury; (3) gangrene and infections. In the latter two I should imagine the operation mortality would be very much higher. I have not seen records of its use in military surgery, but conceivably it might be indicated in spreading gangrene as a very heroic measure.

As regards the steps of the operation, these are fully described in the text-books, but certain points are worthy of note.

1. A free removal of the clavicle facilitates finding the subclavian artery and vein, and also assists in securing the transverse cervical and suprascapular arteries with their veins, which may give considerable trouble. Le Conte disarticulates at the sterno-clavicular joint for this reason, but one would imagine this procedure, laying bare the great vessels at their emergence from the thorax, a more dangerous procedure.

Sir F. T. Chavasse divides both pectorals near the chest, turns them outwards, and uses the loop of the anterior thoracic nerve as the guide to the axillary artery. By this means and by dividing the serratus magnus close to its origin from the ribs, and later the latissimus dorsi, the axilla can be removed with its contents intact.

2. Methods to diminish shock. Blocking by Crile's method each cord of the brachial plexus with a 0·5 per cent. solution of cocaine as soon as they are exposed and before ligation of the vessels is of great value. It might also be worth while to block the descending branches of the cervical plexus by injecting them at their point of emergence at the middle of the posterior border of the sterno-mastoid. This would render the whole skin incision anæsthetic.

3. Farabeuf's pectoro-axillary flap seems unduly full, and baggy flaps favour sepsis. With no anterior flap in this case there was abundant covering.

Case of Removal of Scapula.

The third case is one of a round-celled sarcoma of the scapula.

CASE 3.—Patient, aged 29, in September, 1916, commenced to have pain in his left shoulder, which he thought was rheumatism. Later a swelling the size of a golf ball appeared, which gradually increased in size. Dr. R. Cameron, under whose care he was, found the Wassermann test negative, and sent him to the hospital with the diagnosis of sarcoma. An aspirating needle only drew a little blood.

On March 30th, 1917, under open ether, I made an incision in the axilla with a view to ligature of the subscapular artery as the first step in removal of the scapula, when numerous small glands of a dusky purple colour were encountered. These were removed as high up as practicable without division of the pectorals and the subscapular vessels were ligated.

A T-shaped incision, one limb passing along the acromion and spine, the other along the vertebral border of the scapula, was made, and the corresponding flaps reflected. In exploring the growth with a view of seeing whether a partial removal was practicable, in separating the infraspinatus from the spine, the finger passed through an opening in the venter into the subscapular fossa. The trapezius and deltoid were separated from the attachments to the spine and the base of the acromion sawn through with a Gigli's saw. The muscles attached to the vertebral border, the scapular muscles, and the long tendon of the biceps with the capsule were divided, and the base of the coracoid cut through with bone-pliers, thus preserving the origins of the short head of the biceps and the coracobrachialis. The scapula was then removed after dividing the teres major and subscapularis. The trapezius and deltoid were sutured together.

There was considerable shock, and he was placed on continuous saline and the usual measures. Stitches were removed on the ninth day and primary union was obtained. An attempt was made to keep the limb in abduction on a Jones's abduction splint, but he could not be induced to keep this on, unfortunately, or he would have retained much more power of abduction.

On May 18th he was readmitted, a large mass having formed in the axilla, and two days later the axilla was cleared with division of the pectorals, which were subsequently sutured.

On June 13th, glands having appeared above the clavicle, a further operation was performed. The posterior triangle was exposed by an incision from the mastoid to the clavicle along the posterior border of the sterno-mastoid and outwards along the clavicle, and the whole of the fat from this space, from the mastoid to the clavicle and from under the trapezius, which was partially reflected, to the carotid sheath, was removed.

From April 30th he had received daily injections of Coley's fluid, starting with ¼ minim and increasing by ½ minim until with 3½ minims he had a fairly severe reaction. It was intermitted for a few days and then resumed. In all I think about 15 injections were given, but I have not the record by me. Prophylactic X ray exposures were given by Captain Owen Ll. Rhys at weekly or bi-weekly intervals, and up to the present date he has received 25 exposures. His present condition is shown in Fig. 2, and so far he appears in perfect health and shows no signs of recurrence. He has a very useful arm, except that voluntary abduction is limited to about 45°, and there is some limitation of both antero-posterior and rotatory movements. In view of the known malignancy of round-celled sarcoma of bone and the extensive invasion of glands that occurred, I cannot but think that the combination of Coley's fluid and X ray exposures had something to do with freedom from recurrence up to the present (November, 1918).

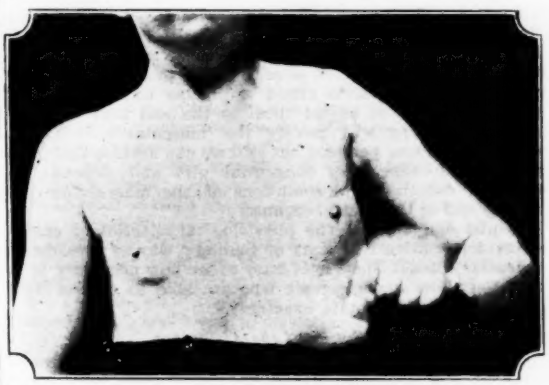


FIG 2.—Showing full amount of voluntary abduction at false joint between head of humerus and chest wall. Range of active movement 45°.

I have had several other cases where I adopted this combination of post-operative treatment, but the time that has elapsed has not been sufficient to warrant any conclusion being drawn, although so far the results have been hopeful.

As regards the steps of this operation, which entails considerable shock, the following points may be noted:—

To use all ordinary measures for preventing shock, and possibly blocking the descending branches of the cervical plexus, might be worth trying, although this would only affect the skin incision. Preliminary ligature of the subscapular vessels should be done, and if there is any reason to suspect glandular involvement the pectoral muscles should be divided and the whole axilla cleared, as in a breast operation, with subsequent suturing of the muscles. Sarcoma of bone is prone to affect the glands, and if it is possible this should be done in all such cases.

Ligature of the suprascapular and posterior scapular vessels as soon as they can be exposed by reflecting the trapezius will save hæmorrnage in the later steps of the operation.

It can seldom be safe to leave the glenoid process, and it is doubtful if any better functional result will be secured by so doing, as all the surrounding muscles are divided and adhesions would form. It is, however, most important at an early stage to adopt some means to keep the arm in abduction to a right angle.

Cardiff.

THE ERGOESTESIOGRAPH:

AN APPARATUS FOR THE GRAPHICAL REPRESENTATION OF THE MUSCULAR APTITUDE OF CANDIDATES FOR AVIATION.

BY G. GALEOTTI,

PROFESSOR OF PATHOLOGY AT THE ROYAL UNIVERSITY OF NAPLES, IN CHARGE OF THE PSYCHO-PHYSIOLOGICAL LABORATORY FOR AVIATION.

IT is well known how much uncertainty still exists in regard to the senses (muscular, articular, tendinous sense, and more generally deep sensation) that allow us to appreciate the amount and strength of our movements so as to regulate them according to the intended aim. This uncertainty includes the fundamental scientific points of view as well as the method of investigations.

We know by daily observations that the degrees of muscular coördination of individuals are very different. Some people can execute with great adroitness and perfection all their movements, regulating in a precise way the contractions of their muscles, so as to attain their object. Other people are not able to attain a precise control of their movements and to adjust them to the end they strive to attain. Training will modify the muscular coördination capacity of these persons, but still we can assume that good muscular aptness is a congenital gift and depends on complex constitutional conditions of the musculo-nervous system and of the central organs.

Whilst employed in the physiological selection of candidates for aviation I thought of finding a way to investigate muscular aptness, since it is easy to see how necessary it is to select pilots among people who are able to control their movements with absolute exactness.

Description of the Apparatus.

To this end I have worked out the apparatus which I have named *ergoestesiograph*. Its object is to record graphically the individual manipulative ability in counterbalancing variable resistances.

The instrument is shown in Fig. 1. On a strong low table is pivoted a lever with unequal arms. On the long arm, A (60 cm. length), there slides a sleeve, B, which carries a hook, to which is attached a weight and a rod, C. The rod

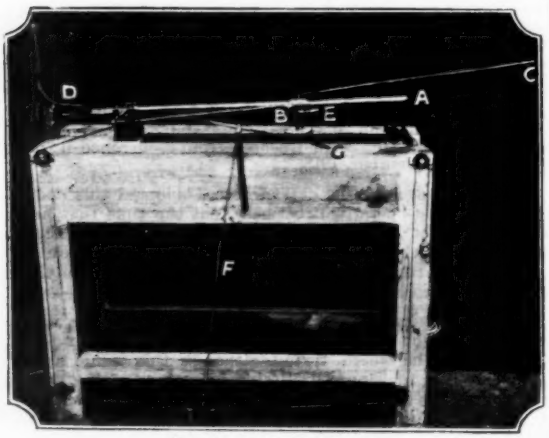


FIG. 1.—The ergoestesiograph.

serves to slide the sleeve and weight along the arm. On the short arm of the lever another small rectangular lever works, to which a handle is attached. A glance at the figure will show how, by pushing the handle forward, the arm A of the principal lever will rise. To this lever is attached a writing style, E, which traces on the revolving cylinder the oscillations of the lever. Another style, G, is attached at right angles to the rod F; this oscillates, and by means of a wire-and-pulley transmission traces on the same cylinder, according to the movements of the sleeve B, the displacements of the weight, and therefore the variations of the resistance.

The candidate and the observer are situated as shown in Fig. 2. The observer, by means of the rod C, slowly slides the sleeve B. The candidate, blindfolded, holds the handle, and *feeling* the variation in resistance, due to the sliding of the weight, tries to oppose it, and so to regulate his own muscular force as to keep the lever A always horizontal.

On the cylinder the writing styles trace two curves: one with large regular oscillations, which represent the variation of the resistance, and this I name *resistance curve*; the other represents the vibrations, uncertainties, and jumps of the muscles which attempt to compensate the variations of resistance; this curve may be called the *muscular curve*.

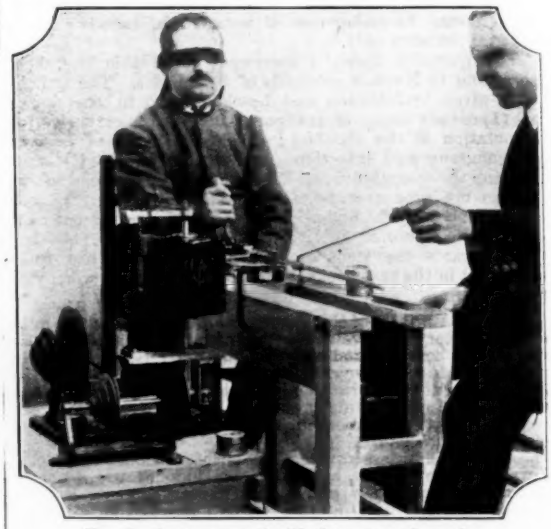


FIG. 2.—An experiment with the ergoestesiograph.

The experiment is usually conducted in two ways.

(1) The candidate places himself as shown in Fig. 2, and the slight movements he makes with his forearm are in the same plane of the lever A. I have named this *first position*.

(2) The candidate places himself laterally to the table; the plane in which the lever A moves is perpendicular to the forearm. I have named this *second position*. In this way the aptitude for forward and back movements, as well as for side movements, can be recorded.

In the first position the experiment is easier for the candidate, and the muscular curves are always more regular than those obtained in the second position.

Other data regarding these experiments are the following: The weight is 2 kg. for the first position and 1 kg. for the second. The variation of the resistance goes from 12 kg. (lowest apex in the curve of the resistance) to 2 kg. (highest apex in the same curve) in the first position; from 6 kg. to 1 kg. in the second. The displacing of the weight is so done that each oscillation has a period of about 10 seconds.

Results of Observations with the Instrument.

With this instrument I have already obtained a great number of tracings, and it may be said that these tracings have a personal type, like the ergograms obtained with Mosso's instrument.

I have experimented with various people—with individuals not accustomed to any kind of muscular work, with persons accustomed to various sports which require skill and exactness of movements, e.g., with horsemen, motor cyclists, automobile drivers, and aviators. Naturally, I specially concentrated my attention on the latter, and I have been able to experiment on a certain number of pilots. I have ascertained with satisfaction to myself that the best curves have been given by aviators who have shown the best records in flying, while curves not so good were obtained from untrained pilots and candidates still under instruction. I have also obtained quite good tracings from good riders, probably because they are trained to keep the reins in a state of correct tension by an adequate contraction of the muscles of the arm and forearm.

Thus, in this respect the instrument has shown itself to correspond to the aim for which it has been constructed—viz., to place on record evidence of the good or bad muscular coördinations of the individuals subjected to the experiment

Theoretically, from an individual with perfect neuro-muscular mechanisms—that is, from a man capable of com-

pensating at every instant the variation of the resistance by an adequate contraction or relaxation of his muscles—a horizontal line should be obtained. But in practice that does not take place, and each subject will follow somewhat the oscillations of the resistance, so that even a very good muscular curve shows an undulating aspect.

Types of Curves Obtained.

The collected material, although not quite sufficient for allowing definite conclusions to be drawn, permits me, however, to give some hints on various types of curves obtained with my instrument. In these curves it may be noticed:—

(*a*) In the best cases the muscular curve maintains itself in a middle zone of the tracing; that means that the person subjected to the experiment can appreciate and maintain the horizontal position of the lever. In other cases some people make curves which regularly and continually descend; these persons do not feel that the tension of their muscles is gradually giving way; other people instead make curves which continually rise—that is, they react to the variation of the resistance with an increasing muscular effort. Generally, the descending or ascending type remains with the same person, even if the experiment is repeated many times.

(*b*) The best curves are those in which the principal oscillations are uniform and not very high. Moderately good curves are those in which the principal oscillations, though uniform, are rather high; this means that the candidate follows the variations of the resistance too easily—that is, he is not able to compensate them in a quick and exact way. Bad curves are those in which the oscillations are not uniform and vary very much in height.

(*c*) The presence of notches and jumps is the most important point to be considered. In very good curves the notches are very small and there are no jumps of the

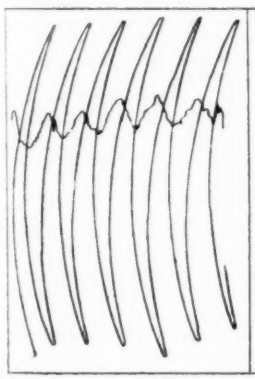


FIG. 3.—A good curve obtained from a famous aviator.

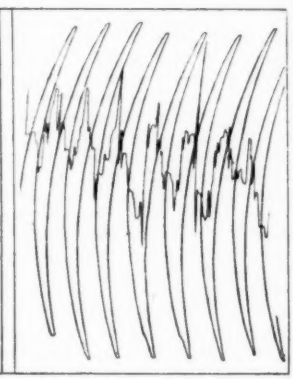


FIG. 4.—A bad curve obtained from an individual with poor muscular coördination.

lever. This means that the candidate can augment and diminish in a uniform and steady way the contractions of his muscles. When he cannot do this there are vibrations and sudden strengthening and collapsing of the contractions—that is, the individual does not regulate his muscles evenly, and we have then those very irregular tracings which are characteristic of awkward persons.

These conclusions may be summarised as follows:—

(*a*) Good curves which show excellent muscular coördination: the curve remains in a middle horizontal zone; principal oscillations are uniform and low, with few small notches and no jumps.

(*b*) Moderately good curves: ascending or descending curves; curves with principal oscillations rather high and not uniform; curves with many and pronounced notches.

(*c*) Bad curves, which show poor aptitude to regulate the muscular activities: uneven, irregular curves, with large notches and jumps.

As an example, in Fig. 3 a very good curve is reproduced, obtained from one of our best pilots, and in Fig. 4 a very bad curve, made by a person who possesses neither precision, skill, nor agility of movement, and therefore would never be able to become a safe aviator.

NEURASTHENIC AND HYSTERICAL CASES IN GENERAL MILITARY HOSPITALS.

BY R. H. TROTTER, M.D. MANCH.,
MAJOR, R.A.M.C. (T.C.); OFFICER IN CHARGE, MEDICAL WARDS, HUDDERSFIELD WAR HOSPITAL.

BY Army Council Instruction 712 of 1918, paragraph 4—

"Cases which it may not have been possible to send to one of the special hospitals mentioned in para. 2, and all other cases occurring in other central and auxiliary hospitals, will be transferred to one of those special hospitals as soon as the necessary accommodation is available."

Hysterical and neurasthenic patients, therefore, should only be found in the wards of a general hospital when they are awaiting transfer to a special hospital, or when they are suffering from some physicopathic condition which so far overshadows the psychopathic element in the case as to cause this element to be readily overlooked, or, if it is recognised, to be relegated to a secondary place.

Importance of Early Diagnosis and Treatment.

The object of the present contribution is to enforce the importance of being constantly on the look-out for such symptoms in patients admitted for physical disease, and, in cases admitted as neurasthenia, of adopting such treatment as is possible in a general hospital pending transfer, instead of leaving the patient untreated.

A vicious neuropathic habit speedily becomes fixed, and few cases coming within the scope of medical treatment partake more of the nature of those pathological emergencies which are usually supposed to be the exclusive property of the surgeon. It is, indeed, but a mild exaggeration to assert that early treatment in the psychoneuroses of war is as important as prompt surgical interference with the course of acute appendicitis. Yet there is a tendency, as soon as the diagnosis of neurasthenia or hysteria is made or confirmed after reception of a case so diagnosed overseas, to mark the patient for transfer to a neurological centre, and then to take little further interest in him, even though the interval before transfer takes place is occasionally extended to several weeks. There is also, perhaps as a part of the recent disposition throughout the profession to exalt surgery at the expense of medicine, an inclination in the surgical wards of all hospitals, both civil and military, to lose sight of the patient in striving after the extension of the field of surgery and the attainment of perfection in technique.

Though for continued treatment and complete cure of most of the motor, sensory, and visceral psychoneuroses, and of nearly all the psychical neuroses, the mental atmosphere and the facilities for subsequent open-air employment found in the neurological centres may be essential, the essentials for emergency treatment should be at hand in every general hospital. These essentials are accurate diagnosis, confident prognosis, understanding sympathy, and inexhaustible patience. Given these, many cases developing hysterical conditions whilst under treatment may be cured at once (a common example being hysterical aphonia and photophobia after gas poisoning), and other patients definitely hysterical may be transferred to the neurological centre when the vacancy is notified already on the high road to recovery.

Method of Treatment.

In the treatment of motor psychoneuroses I have followed lines similar to those suggested by Major A. F. Hurst.

The patient is subjected to partial isolation in a special case ward, but any irksome restriction is avoided. The nature of his ailment is explained to him in accordance with his capacity for understanding such an explanation, an exhaustive examination having preceded the diagnosis of a pithiatic condition. He is confidently assured of an early and complete recovery. If the motor psychosis takes a spastic form passive movements are performed until relaxation of the muscles is secured. If the "palsy" is flaccid the manipulation is carried on until a flicker of muscular contraction is elicited. During the manipulation the patient is assured with monotonous reiteration that recovery is about to take place and that it is a matter of absolute certainty, and any objections and difficulties are met and answered. At the least sign of muscular contraction he is urged to resist the passive movements, and often hours elapse before the muscular resistance becomes powerful enough to retain the "palsied" limb in a momentary rigidity. The manipulation is then suddenly interrupted, and the man, taken by surprise, maintains the limb for a second or two in the posture in which it has been suddenly abandoned

by the manipulator. From this point further progress is rapid, as the least intelligent subject can now be readily convinced of the unreality of his supposed paralysis. The principal danger if he has to wait some time before being passed to a neurological centre is the development of one of the fantastic habit gaits so easily acquired by recovering pithiatic paraplegics, but this is readily avoided by a little supervision. Exercise and such employment as is available should be resorted to at once, for to leave the patient with an idle brain is to court a relapse or a psychical neurosis.

Psychical neuroses are frequently amenable to a psycho-analytical talk, resolving doubts and difficulties and leading the sufferer back to a normal outlook upon life. Mild degrees of this condition are very common in the medical diseases of war. The patient confined to bed with an ailment which does not eliminate his neuropathic potential by overwhelming it with pain has time to think over his war experiences, and in this instance Cowley's lines—

> "Things which offend when present and affright
> In memory, well painted, move delight"—

are very far from the truth.

In the surgical injuries of war, on the other hand, the pithiatic symptoms are frequently determined by the surgical lesion, and tend to develop along the lines of motor and sensory psychoneuroses. It is an interesting speculation how far the reflex contractures of Babinski and Froment would be prevented by early neuropathic treatment. Certainly unceasing vigilance is called for in the surgical wards of a general military hospital to prevent development of neuropathic conditions.

Visceral neuroses are often aggravated by essays in abdominal surgery, though sometimes a temporary improvement may follow the operation.

Illustrative Cases.

The following cases recently coming under observation are illustrative of some of the foregoing remarks:—

1. S. E., aged 34. *Pleurisy and acute rheumatism with endocarditis.* In bed four months for this condition. Walked badly on getting up, and when at an auxiliary hospital fell on uneven ground and became paraplegic. When I undertook treatment of the paraplegia he had been in bed a further four months. After two and a half hours of manipulation combined with vigorous persuasion he got out of bed unassisted, and with some education recovery of walking power ensued. The V.D.H. necessitated his discharge from the Service.

2. E. H. R., aged 45. Transferred from France after attack of *acute gout in foot.* Diagnosis, "myalgia." Mother was paraplegic two and a half years, and man was confident that his condition resembled hers. Had been in bed five weeks when treatment undertaken, and recovery of walking power was effected after three-quarters of an hour.

3. V. W., aged 31. Sent home from India with *debility and chronic intestinal obstruction following dysentery.* Had trench fever in France before going to the East and had "terrible pains in the legs" ever since. The shin pain was a typical algia and disappeared almost at once under vigorous persuasion. He had been in bed nine months and believed that he would never walk again, but recovered the use of his legs after the usual treatment, and was walking about unaided 14 days after admission.

4. C. H., aged 23. *Paralysis* (unable to flicker a toe) *of both lower limbs and left arm.* Ankles supported by stirrups from thighs and air-cushion in use to prevent bed-sore. Passed as permanently unfit by a board in the East and disability estimated at 100 per cent. Been in bed eight months. As there was no immediate vacancy at a neurological centre I undertook treatment at once, and after some hours' treatment, as described, he was able to stand and walk, and within 14 days of admission was going out alone on pass.

5. T. S., aged 22. Sent home from the East diagnosed "*effects of heat,*" with history of severe sunstroke, but opinion expressed that part of the condition was functional. Total flaccid paraplegia and paralysis of left upper limb; athetosis-like movements of left side of eight months' duration; absolutely bedridden for six months. There being no immediate vacancy in a neurological centre treatment was undertaken five days after admission. In half an hour the athetosis had disappeared, in an hour the left upper limb was moving normally, and in three hours the patient walked into the hospital grounds with me.

6. B. H., aged 21. *Fractured pelvis* seven months ago. Never walked since, save with crutches, and then with difficulty. Performed all movements of limb and walked with stick after half an hour's treatment.

7. J. L., aged 35. *P.U.O.* Complained of depression and had marked tremor when under observation. Elicited that after being bombed when carrying comrades to a place of safety this incident had remained as a painful impression, repressed during waking, but recurring nightly in dreams. Urged to familiarise himself with every detail of the incident in his waking hours and to discuss with other men. In a fortnight all psychasthenic symptoms had disappeared. This case is typical of many.

8. W. L. M., aged 19. *Mutism.* Eight days before admission from overseas a shell burst close by when he was lying down waiting to attack. He remembers nothing further until he found himself in a trench with three wounded men of his company who had carried him thither. Has never spoken since. No external injury. Communicates by signs and writing. Treatment undertaken day after admission. Explanation, manipulation, and persuasion. Speech restored in half an hour.

The list could be extended, but I have said enough to show that by simple methods early cases developing in hospital can be cured at once, and established cases awaiting transfer need not necessarily be allowed to drift.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

Presentation of the Diploma of Honorary Fellowship to Sir Alfred Keogh, G.C.B.

A GENERAL meeting of the Fellows of the Royal Society of Medicine was held on Nov. 14th, Sir HUMPHRY ROLLESTON, K.C.B., the President, being in the chair, when the President presented the diploma of Honorary Fellowship to Sir Alfred Keogh, G.C.B., late Director-General of the Army Medical Service.

In presenting the diploma the PRESIDENT gave a brief sketch of Sir Alfred Keogh's career, pointing out his connexion with the R.A.M. College, his organisation of the Territorial R.A.M.C., and his truly Herculean task of creating an efficient medical service on a war basis, showing his wisdom by the free utilisation of available civil talent in the form of consultants and experts, successfully blending them with the Regular Service. Sir Alfred Keogh was the fifty-seventh British Honorary Fellow, there being but 146 Honorary Fellows since the establishment of the Medical and Chirurgical Society in 1805.

Discussion on Influenza.

Sir ARTHUR NEWSHOLME, K.C.B., opened the discussion on Influenza. His paper will be found in full on p. 689 of our present issue.

Epidemiology.

Dr. T. H. C. STEVENSON exhibited charts showing the difference in the age distribution in this and the earlier epidemics, in the July and September 1918 outbreak a very small proportion of cases occurring amongst old people. The same held good for Paris. A large number of cases occurred in persons between the ages of 25 and 35, and this would be still more marked if the military deaths were included. The ratio of pneumonia to bronchitis had greatly increased in this epidemic compared to those of former years.

Captain MAJOR GREENWOOD showed a chart which illustrated the symmetrical curve obtained in the Munich outbreak and other charts exhibiting a similar symmetry in primary outbreaks in England and asymmetry in the secondary outbreaks. He did not regard food shortage as a cause; there was no previous gradual morbidity rise, as would be noticed if this were the case, and the troops both of ourselves and our Allies were well fed. Overcrowding, both at work and at home, and possibly fuel shortage were more likely to be accountable. Authorities at munitions factories had been advised to take precautions regarding a *possible* (not a *probable*) epidemic, so that seriously ill cases could be properly looked after and hospital accommodation provided.

Dr. W. H. HAMER drew a distinction between two things. As to the first, there was apparently agreement, it being now admitted that there was a close relationship between outbreaks of cerebro-spinal fever, poliomyelitis, and polio-encephalitis, and outbreaks of influenza, bronchitis, and pneumonia. As to the second, there was not, perhaps, the same general consensus of opinion. It was claimed not only that these diseases prevailed in the same communities, either concurrently or in closely related sequence to one another, but also that two or more of them might, in certain phases of epidemicity, simultaneously affect members of the same household or other associated groups of persons. Work which had been done on the subject (of which he gave a brief review) pointed to a common cause operating in the epidemic diseases in question, but whilst some held that this cause was the same living organism, others maintained that the nexus which bound cerebro-spinal fever, poliomyelitis, polio-encephalitis, and encephalitis lethargica together with influenza, bronchitis, pneumonia, and epidemic catarrh was merely predisposing (telluric, climatic, &c.) and not an actual causal influence exerted by one and the same infecting agency operating in all of them. Sir Arthur Newsholme had added measles and whooping-cough to the group, but distinction should be made between these two diseases and those just enumerated; detailed evidence as to a very remarkable association of outbreaks in respect of their time distribution and of the presence of the several disease types in households and in groups of associated persons had been adduced in

the case of the former, but no similar intimate interrelationship between them and measles and whooping-cough had been demonstrated. He called attention to the fact that an important argument in favour of a *common infecting agency* in the first-named influenzal group of diseases was forthcoming in applying the principle known as the law of parsimony. The hypothesis that there was *one common infecting agency* fitted the facts and greatly simplified the necessary assumption. He pleaded for the application of William of Occam's razor—*Entia non sunt multiplicanda praeter necessitatem*—to the present case. The use of this instrument would not only reduce by some millions in London alone the number of carriers of the causal agent, many or all of whom were regarded by whole-hearted supporters of the healthy carrier doctrine as persons who should be segregated, but it would also enable a consistent workable theory of the case to case spread of influenza to be formulated. It would, by focussing attention upon one single cause instead of upon a congeries of secondary invaders, give research workers and statisticians a chance of studying the laws of influenzal epidemicity, and at the same time relieve preventive medicine of the need of carrying on its shoulders an impracticable working hypothesis.

Colonel SOLTAU said that influenza had been present in the Armies in France all during the war on a small scale. True bacteriological influenza was always present in the winter. The epidemic broke out in the first week in April in the Army in Northern France and spread to other areas. The spread was most marked amongst men who were sleeping or messing together. It was a mild form, there were no fatalities, and no cases had to be evacuated. It continued during May and broke out afresh in June, and continued during June, July, and August. This epidemic was very severe numerically, virulence increased steadily from the middle of June, and the proportion of respiratory complications rapidly increased, pulmonary complications being particularly fatal. Many patients had slumbering or latent nephritis lighted up, and of these the majority died. Post-mortem examination showed evidence of long-standing renal degeneration, both macroscopically and microscopically. Of 3000 men in Captain Charters Symonds's casualty clearing station admitted for influenza, 22 developed renal disease.[1] The epidemic was serious from a military point of view at the time when an attack was expected, but the German Army was also severely affected, whole divisions being withdrawn owing to sickness.

General W. S. THAYER, U.S.M.C., of the Johns Hopkins Hospital, said that the American Army had had a similar experience, the epidemic bursting out at several different camps at the same time, and not starting from a single centre. It occurred in a mild form, with a three or four days' fever, no complications, very few respiratory symptoms, and no mortality except in the case of men who had been subjected recently to phosgene gas by the Germans, and who developed pneumonia. In the latter part of September a more severe type broke out, with severe respiratory complications, almost entirely pneumonia, and a pneumococcus pneumonia almost universally. There was a simultaneous outbreak in camps in America, and many men developed the disease on board ship on their way over.

Surgeon-Lieutenant E. L. STURDEE, R.N., gave his experiences at a naval depôt. From July to September the epidemic never quite stopped, and about Sept. 27th there was a sudden rise in the number of cases. Deaths almost entirely occurred amongst men of 18 to 20. The pneumonia in the second epidemic seemed to be a secondary and entirely epidemic infection, coming on while the men were recovering, and rapidly spreading from one to another.

Bacteriology.

Surgeon-Captain P. W. BASSETT-SMITH spoke of the Plymouth epidemic, which was associated with pleuro-pneumonia as a secondary infection of a very virulent type, that and empyema being very frequent. Examination of the sputum showed the presence of the Pfeiffer bacillus, the pneumococcus, and streptococcus. The streptococcus was the most virulent organism in that particular locality at this time, but the pneumococcus had been obtained in relatively large numbers from the blood in cases occurring at another port, and either the streptococcus or the pneumococcus might be the cause of death.

[1] THE LANCET, 1918, ii., 664.

General THAYER gave the results of studies of the disease which were collected at the Central Laboratory. In some instances the influenza bacillus was present in the nasal secretion, and in these there were few respiratory complications. Later, as respiratory symptoms became more common, the influenza bacillus was discovered in a larger number of cases than at first. The organism was found in the upper part of the respiratory tract and less commonly in the lung. In certain early cases a small Gram-negative diplococcus had been found. The complicating organism varied. With regard to the respiratory complications, he said that the pneumonia which followed influenza had been with the American Army pneumococcus pneumonia, though isolated instances of streptococcus pneumonia had been seen. In other instances streptococci had occurred in connexion with pneumococci—mixed infection—but in the majority of cases it had been a pure pneumococcal pneumonia. The pneumococcus as found in the camp hospitals was, for the most part, Types 4, 3, and 2: there were relatively few cases of Type 1. There was a great rise in the number of cases of meningococcal meningitis associated with the outbreak, and in several different points in connexion with the pneumonia observed, meningococci had been cultivated from the lung tissue. The general feeling had been that it was a secondary factor.

Investigation of Cases at Royal Herbert Hospital, Woolwich.

Sir KENNETH GOADBY gave an account of the study of a number of acute cases of the prevailing epidemic of influenza in the wards of the Royal Herbert Hospital, Woolwich. About 1000 cases were admitted, with a mortality of about 5 per cent. The majority of the cases were characterised by acute onset of malaise, with pain in limbs and frontal headache. Some of the cases had practically no lung symptoms, but a large number developed an acute broncho-pneumonia, commencing at the base of the lung and associated with blood-stained sputum of a salmon-pink colour; very few showed the rusty sputum common in lobar pneumonia. Epistaxis was a common feature, and a proportion of the cases showed a cyanosis of a curious type not directly attributable to consolidation of the lung. He had made a bacteriological examination of 30 cases at various periods after the onset from the first to the seventh day. Seven cases had consolidation of the lung, 27 had epistaxis, and 27 had broncho-pneumonia with red-stained sputum. A short diplo-bacillus had been found, but not in pure culture. It grew on blood agar only, was Gram-negative, non-motile, extremely short, and showed a tendency in individual cultures to considerable alterations in morphology. Streptobacilli containing 7 or 8 elements and even threads had been noticed, as well as shorter, somewhat swollen forms of an oval clostridial type. The organism corresponded with the description and characters originally given by Pfeiffer, was present in the films of the sputum in 27 cases, and was isolated in pure culture in 18. In addition the pneumococcus and streptococcus occurred with considerable frequency. Gram-positive diplococci with capsules were found in 22 of the sputa examined microscopically, and were isolated in 21. The streptococcus was seen in 14 of the sputa examined microscopically, and was obtained in pure culture in 19; it was strongly hæmolytic. Various types of the Gram-negative cocci of the *Micrococcus catarrhalis* group were observed, and in the last series of cases examined a few showed the presence of Gram-negative bacilli of the Friedländer type. The Gram-negative bacilli of the influenza class were present in greatest numbers in the sputa examined in the early stages of the disease, especially when blood staining first appeared. Blood culture was attempted in 6 cases, 2 of which proved positive, the organism isolated being in both cases the streptococcus of strongly hæmolytic type. No Gram-negative bacilli were found. In the 30 cases examined the bacteriology of the fatal and non-fatal cases appeared similar. The hæmolytic streptococcus was recovered from the sputum of 6 of the 10 fatal cases, and was not present in the remaining 4. A blood examination was made in 8 of the cases, 3 of which were fatal. The outstanding feature was a leucopenia. In no case was leucocytosis observed. In the differential count there was a relative polymorphonuclear leucocytosis in 3 cases, 2 of which were fatal. The recovering case was an extremely grave one, in which a vaccine was used, which might possibly have complicated the issue. A differential count of Arneth's type showed a large increase in the

horseshoe and rod-shaped nuclear cells and a diminution in the trilobed nuclear. There was no appreciable increase in the quantity of large mononuclear or small mononuclear cells, except in 1 fatal case. The high relative proportion of rod-nuclear and horseshoe-nuclear cells appeared of decided prognostic significance. The fact of the occurrence of plasma cells was also striking. Whatever its pathological significance, he thought there was no doubt that a short Gram-negative bacillus was associated with the early acute stage of the present epidemic in all the cases which he had examined.

Account of Another Investigation.

Captain H. E. WHITTINGHAM, R.A.M.C. (T.), attached R.A.F., gave an account of investigations which were undertaken by him and Dr. Carrie Sims to ascertain whether the present October "influenzal" epidemic and the July "Spanish plague" were due to one and the same micro-organism or group of organisms. That the causal organisms were not the same in both cases was suggested by the distinct difference in the signs and symptoms. Pharyngitis and laryngitis, with marked nervous prostration, distinguished the earlier epidemic; bronchitis and broncho-pneumonia, with septicæmia, the plague now with us. Over 100 cases were examined as regards the micro-organisms present in the posterior nasal swabs and sputa. The urine of these cases was also examined on several occasions. Blood cultures were performed on the first 50 of the cases admitted to the two hospitals in which he and Dr. Sims worked, and they had based all their figures on these 50 cases; but taking each case as admitted, whether mild or severe, would give as fair a picture as possible of the pathological findings of the disease. *Blood cultures* were performed on 50 cases. Positive results were obtained in 7 (or 14 per cent.), and of these the streptococcus was found in 5, the pneumococcus in 1, and a Gram-negative diplococcus in 1, this organism being isolated by them twice in the July epidemic. Three of these streptococci hæmolysed distinctly and 2 slightly. Death occurred in 6 of the 50 cases, 4 of the deaths (or 57 per cent.) occurring amongst those patients with a positive blood culture, the other deaths being due to purulent bronchitis and cerebro-spinal meningitis respectively, in which cases blood cultures proved negative. The death-rate among the patients with a negative blood culture was 4 per cent. The day of disease on which the various blood cultures were taken and the results of culture were shown in a table, the percentage of cases showing positive blood cultures increasing as the disease progressed, all cases showing positive cultures on the sixth and seventh days. *Throat swabs and sputum.*—Posterior nasal swabs were examined from the 50 cases, and the sputum of 23 of these. The chief micro-organisms present were as follows: Streptococcus was found in 80 per cent., pneumococcus in 66 per cent., *M. catarrhalis* in 72 per cent., staphylococcus in 54 per cent., *B. influenzæ* in 48 per cent., *B. septus* in 20 per cent., pneumo-bacillus in 16 per cent., and meningococcus in 8 per cent. of the cases. Captain Whittingham then gave a detailed description of the micro-organisms found. Streptococci were the predominant organisms in 30 per cent. of the cases, pneumococci predominated in 26 per cent., *M. catarrhalis* in 34 per cent. (being very similar to those isolated so frequently in the previous epidemic), *B. influenzæ* in 1 case (though found usually in small numbers in many of the cases), staphylococcus in 8 per cent. (most frequently *Staphylococcus aureus*). Meningococci were isolated from the posterior nares in 4 cases; 2 of these developed typical cerebro-spinal fever, 2 failed to show meningeal signs, and were apparently carriers.

Post-mortem examination.—Of the 50 cases dealt with, there were 6 deaths, or 12 per cent. Post-mortem examinations were performed on 5 cases, the pathological findings being more marked in those who died later in the course of the disease. The principal findings were as follows. The trachea showed acute congestion, more marked in the lower part, and in 2 of the cases greenish-yellow pus filled the lumen of the tube. The bronchi were congested, and pus filled them in the 2 cases in which it was found in the trachea. *Lungs.*—In the 2 cases which died on the fifth day there were marked congestion and œdema of both lungs; in the other cases there was double lobar pneumonia. The pleuræ showed inflammation. In 2 cases blood-stained inflammatory exudate was found in both pleural sacs; left unilateral empyema was present in 2 other cases. *Pericardium.*—Sero-fibrinous pericarditis was present in 1 case. In the 4 other cases the pericardium was normal. *Heart.*—In all cases there were more or less dilatation of the right heart, ante-mortem clot in the right auricle and ventricle, and pallor of the cardiac muscle. The *bronchial lymph glands* were enlarged, soft, and congested in 3 of the cases. *Peritoneum.*—Petechial hæmorrhages were found in all the cases; fibro-purulent peritonitis was present in 1. The *liver* showed early fatty changes throughout. The *spleen* was somewhat enlarged, congested, soft, and pulpy in 4 cases. *Kidneys.*—Slight fatty changes occurred in 1 case, 2 showed marked congestion, and 2 distinct toxic nephritis. Stomach and intestines showed submucosal hæmorrhages in 2 cases. *Brain.*—Distinct congestion of meninges and grey matter of the cortex was present in 2 cases. Ventricular fluid was normal in all.

Bacteriological examination of material taken at the post-mortem showed that the *B. influenzæ* was present in the bronchial discharges and lungs of 1 case only. Pneumococci were present in the bronchial discharges, lung smears, and pleuritic fluid of all cases, in every instance accompanied by streptococci and in 2 cases by *Staphylococcus aureus*. On one occasion pneumococci were isolated from the pericardial sac. Streptococci were present in the bronchi and lungs of all cases, in the pleuritic fluid of 4, in the heart's blood and spleen of 3, and peritoneal fluid of 1 case. The cocci conformed to the hæmolyticus type in all except 1 case. Pneumo-bacilli were isolated from the lungs of 2 cases and *Streptococcus aureus* was found in the bronchi and lungs of 2 cases.

Urine.—As in the July epidemic, albumin was present in a high percentage of cases, 100 per cent. on the second day of the disease. Casts and renal epithelium undergoing granular degeneration were present in 50 per cent. on the third to fifth day. Granular casts and renal cells were the commonest, hyaline casts were frequently present, and in some of the more severe cases epithelial and even blood casts were found. On the whole the kidney changes were greater in the present outbreak. The albumin continued to be present over a longer period, in some instances not clearing away before the twenty-first day, and where it had disappeared it often returned when the patient was given an increase of diet or was allowed out of bed. Patients had even returned to duty only to relapse, with distinct albuminuria and œdema of the eyelids. It was of the utmost importance that all influenza cases should be free from exposure to the elements and hard work for at least three weeks after the acute symptoms had subsided.

Leucocyte count.—Daily total and differential leucocyte counts were done on 12 cases over a period varying from 4 to 21 days. The results obtained showed three distinct types of leucocytic curves in the present "influenza" epidemic: Type 1, influenza uncomplicated; Type 2, pneumonic form; and Type 3, the lethargic form. The influenza type showed a total leucocyte count a little below normal in the early days of the disease and a leucocytosis of moderate degree (10,000 to 15,000 per c.mm.) from the fifth to the seventh day. In the pneumonic type there was a distinct leucocytosis (from 15 000 to 30,000) from the onset, and the total white count never fell below the normal unless death occurred, when either a leucocytosis or leucopenia might supervene. In the lethargic form there was an absolute decrease in the leucocytes (2000 to 3000 per c mm.) from the first, which lasted 7 to 12 days. With convalescence the total number of white corpuscles increased (10 000 to 15,000 per c.mm.), but in cases where death took place the leucopenia became more and more pronounced; all the normal varieties of white corpuscles showed an absolute decrease in their numbers during this leucopenia.

The Epidemic at Aldershot.

Captain HALLOWS spoke of his experience of the epidemic at Aldershot, where there were a number of mild cases in June of this year. In these cases he had found a diplo-streptococcus, and from wet swabs of the posterior nares in about 50 per cent. he had found the *B. influenzæ*. During the present phase of the epidemic he had examined about 35 to 40 cases post mortem with Colonel French's help, taking cultures from the spleen, blood, kidneys, and in some cases from the internal ear, and from any other local lesions which presented themselves, and in about three out of four cases got a positive culture from the heart blood. Those cultures were usually a diplo-streptococcus, in a very few cases the pneumococcus, and in fewer still the pneumococcus and the diplo-streptococcus. In 10 per cent. only of cases had he got a culture from the spleen. He had

got no growth from the kidneys or urine, even though albumin, casts or transitional epithelial cells had been found. He regarded the diplococcus as a pathogenic streptococcus, as the dominant organism in causing the complications of this disease—those complications which we regard as being septicæmic, such as capillary broncho-pneumonia or capillary bronchitis. The fact that it was grown from the heart's blood, from the spleen, and from the lung, and many other parts of the body, he regarded as proof of its being septicæmic. He had found in some cases a very definite collection of pus in the sphenoidal sinus, the growth there giving in some instances the *B. influenzæ*, and in all cases the diplococcus. He thought the initial infection was due to *B. influenzæ*, but the diplococcus soon got a hold and became septicæmic, and gave rise to other conditions of the body, the lung condition being purely secondary to the general septicæmia.

Cases on a Transport.

Captain J. G. HOPKINS, U.S.M.C., gave an account of a number of cases which came in entirely from one transport and were divided among a number of different hospitals. As the epidemic went on the pathological findings presented a different picture. In the autopsies on the first series of cases the influenza bacillus was found alone in 13 cases, mixed with other infections in 24, the pneumococcus in 15. Later, in two widely separated hospitals, out of 55 cultures the *Streptococcus hæmolyticus* was found in 33 per cent.; in another hospital, out of 22 autopsies the pneumococcus, Type 4, was found in 22, or 100 per cent., and the streptococcus in 4 per cent. In other words, though the original infection was in all cases the same, yet in one hospital there was a preponderance of cases infected with *Streptococcus hæmolyticus*, whereas in another there were 100 per cent. of cases with the pneumococcus. They concluded that the pneumococcus, the streptococcus, the staphylococcus, and meningococcus were probably secondary infections. Whether the influenza bacillus was the primary cause or also a secondary invader it was difficult to determine, but we had to bear in mind that these bacterial infections were superimposed on one another.

Major LITTLE, Surgeon-Lieutenant G. ROCHE LYNCH, R.N., Captain ARCHIBALD MALLOCK, C.A.M.C., and Captain W. E. CARNEGIE DICKSON also spoke on the bacteriology of the disease.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section was held on Nov. 7th, Mr. J. D. MALCOLM, the President (and later Dr. AMAND ROUTH), being in the chair.

Presidential Address.

The PRESIDENT, in his address, reminded his audience of the methods of the followers of Lawson Tait, who administered purgatives soon after the operations and forbade the giving of opium, but who scoffed at the germ theory and the use of carbolic acid. Their fatalities, he said, were chiefly from septic peritonitis. If they had brought their new methods into harmony with Lister's teaching they would have advanced almost at a bound to our modern technique and would easily have shown a superiority over the methods practised by the followers of Lister. But they missed a great opportunity. In 1884, said Mr. Malcolm, operations were hardly ever undertaken when acute inflammatory conditions existed, but now a great part of our work was essentially preventive. Operations anticipating complications were extraordinarily successful, especially in connexion with intestinal work. The principle of anticipating trouble had been introduced into the war surgery of the abdomen with great advantage to the patients. The death-rate from abdominal operations at the Samaritan Free Hospital had been reduced from 14 per cent. in 1884 to less than 4½ per cent. in 1916 (the last year available), and this although the area of operative work was much larger and more dangerous in recent years. Finally, it was urged that as hostilities would soon cease the section should endeavour to throw off the inertia which had overtaken its work as a consequence of the war and should resume its meetings regularly every month.

Treatment of Ante-natal and Post-natal Syphilis.

Mr. JOHN ADAMS said that the Local Government Board had made an order that the Metropolitan Asylums Board should arrange with the City of London guardians to receive and treat parturient women suffering from venereal disease, the actual cost being made a charge on the metropolis generally; and, as a result, the Thavies Inn Venereal Centre for Pregnant Women was equipped and opened on Sept. 1st, 1917, and a matron, sister, nursing staff, and himself as medical officer in charge were appointed. The institution provided for 20 beds, and contained an accouchement-room and an operating theatre; it was managed by the guardians of the City of London, who took a keen and progressive interest in its working and results. Since its opening 30 cases of pregnant syphilitic women had been admitted. He gave a detailed account of each case, including the details of the treatment before and after delivery, the treatment of the baby, and the results, as far as they could be ascertained, during the short time the centre had been opened.

On admission a Wassermann test is made by Dr. A. E. Stansfeld, of St. Bartholomew's Hospital, on the blood of every patient suspected of suffering from syphilis, and recently he had had the test made in every case admitted. Immediately on the birth of the child the Wassermann test is done on the blood of the mother, and on that obtained from the vessels of the divided umbilical cord, and a portion of the placenta is examined for spirochætes. As soon as syphilis is diagnosed in the mother weekly doses of the salvarsan substitutes are administered intravenously, beginning with a small dose and increasing till nearly the maximum dose is reached; intramuscular injections of grey oil, 40 per cent. B.P.C. emulsion, are given in 1 g. doses on the same day as the salvarsan. Galyl and novarsenobillon are used, galyl in glucose solution exclusively for the babies. He considered mercury extremely important for the cure of syphilis, and thought that administration by the mouth (as a pill of hyd. c. cret. with equal parts of pulv. ipecac. co., as advocated by the late Sir Jonathan Hutchinson) was the most convenient method, especially in the case of patients who could not be under continual supervision. He preferred galyl to novarsenobillon, and had once had a case of severe dermatitis whilst using the latter drug. He calculated the dose of galyl for a baby by comparing the babies' weight with that of the mother, of which it is about 1/17, so that he gave the babies an intramuscular injection of galyl in doses beginning at 2 cg. and increasing to 5 cg., and mercury in doses of ¼ to ½ gr. or more. The intramuscular injections were given anywhere along the middle third of a line drawn from the anterior superior spine of the ilium to the commencement of the gluteal fold, and the mercury and galyl could be given the same day on opposite sides and repeated after an interval of a week to 10 days.

Reviewing the cases, he said that out of 30 cases 6 babies had been born free from any evidence of syphilis, having a negative Wassermann reaction at birth which continued on future examination of the blood, although the mother had still given a positive reaction for a considerable time after delivery. It had been found that those babies who had at first a positive reaction generally yielded a negative reaction after treatment sooner than their mothers. Up to the present he had not found any case in which a baby who had become negative had later developed a positive Wassermann reaction. The average number of doses of galyl required to bring about a negative reaction had been 6·5 and the amount per case 30·15 cg. In every instance it had been found that the child gained regularly in weight and showed no further signs of syphilis. Owing to the limitation of accommodation at Thavies Inn cases could not be admitted before the sixth month of pregnancy. He was of opinion that with a large hospital and earlier treatment fewer syphilitic children would be born dead, a larger proportion of them would go to full term, and if not free from syphilis at birth they could by treatment soon become so.

Mr. Adams's conclusions were as follows: 1. Syphilitic pregnant women could be treated with salvarsan, even up to the day of their confinement, with every advantage. 2. A mother whose blood gave a positive Wassermann reaction might, after treatment, be delivered of a child whose blood gave a negative reaction. The child might continue to thrive and give a negative blood test. 3. Syphilitic children could safely be treated by salvarsan immediately after birth. 4. Salvarsan, combined with treatment by mercury, had a more certain and quicker action in producing a negative Wassermann reaction in the child than in the mother. 5. In nearly all syphilitic children born

alive, treatment could convert a positive Wassermann reaction into a negative, and such children appeared to become healthy and showed a regular weekly gain in weight. Between a syphilitic mother and a child who gave a negative Wassermann reaction at birth the placenta appeared to act as an intercepter of syphilitic virus, probably brought about by the chorionic ferments, as shown by Dr. Amand Routh.[1]

Discussion.

Dr. AMAND ROUTH said that according to the Johns Hopkins Hospital reports, apart from deaths at labour due to complications, 25 per cent. of stillbirths were due to syphilis, and amongst illegitimate babies double that number. He was struck by two important things: (1) how it was that any child infected at fertilisation was born alive; and (2) that a number of cases of children of syphilitic mothers stood a good chance of being born healthy. It seemed that there must be some force controlling pregnancy, and from the beginning of pregnancy to childbirth he believed that the chorionic ferments did produce something which could control the situation to some extent. They were no doubt scattered throughout the mother's body and rendered her immune from active propagation of spirochætes during pregnancy. Women after many pregnancies might become cured of syphilis. He had seen cases of this kind in which a mother had first a miscarriage, then a stillborn baby, then a full-term infected child, and later children who showed infection some time after birth.

Mr. W. G. SPENCER remarked on the value of in-patient treatment, which should be increased so that very active treatment could be given in a way which was impossible in out-patient practice. The two medicines must be used, the one which got rid of the manifestations, and the other which got rid of the disease.

Dr. M. HANDFIELD-JONES asked what care should be taken of women in subsequent pregnancies. He had known of a case in which the woman had given birth to a macerated fœtus. She was treated with mercury during the second and third pregnancies. At the fourth pregnancy she was considered cured and was not treated, but at the eighth month movements stopped.

Captain W. GIRLING BALL said that the great difficulty was to get syphilitic mothers early enough. Cases were treated from the sixth month, but more prolonged treatment ought to have better results on the child. A negative Wassermann reaction was produced after 12 doses of salvarsan and mercury in the majority of cases, and in many after six doses. We could never get rid of syphilis if out-patient treatment only were available. Men were more irregular than women in attending. It was waste of these expensive drugs if treatment was not carried out as advised. A large central institution was needed.

Dr. W. H. KELSON said it was necessary to follow up results, especially as regarded future pregnancies.

Dr. A. E. STANSFELD drew attention to the short time in which the Wassermann reactions changed from positive to negative in Mr. Adams's cases. This was not noticeable in older children, and showed a good case for prolonged treatment of babies after birth.

Mr. ADAMS briefly replied, and remarked that if babies were treated early enough (at the latest on the second day) there was no secondary eruption.

SECTION OF ELECTRO-THERAPEUTICS, CLINICAL SECTION, SECTION OF MEDICINE, AND SECTION OF SURGERY.

Examination of the Vermiform Appendix by X Rays.

A MEETING of these sections was held on Nov. 15th, Mr. CECIL R. C. LYSTER, the President of the Section of Electro-Therapeutics, being in the chair.

Dr. E. I. SPRIGGS read a paper on the Examination of the Vermiform Appendix by X Rays, and showed photographs and drawings by Mr. O. A. Marxer, radiographer, Duff House. After a summary of the literature of appendix radiography, in which indebtedness to American workers was acknowledged, a description was given of the methods found of value. The patient was prepared with castor oil and given a meal, similar to that recommended by George and Gerber,[2] consisting of ½ of a pint of buttermilk and 150 g. or less of barium sulphate. Careful screening with suitable manipulation was needed to observe the mobility of the appendix and the presence or absence of active movements or of tenderness. Photographs must also be taken freely, as the chief points which helped to decide whether the appendix was healthy or diseased—namely, the filling and emptying of the appendix, its position, and its outline—are observed best on the photographic plates. The manipulations which had been found most useful were detailed. The following figures were given. The first hundred cases in which was observed the passage of an opaque meal through the alimentary canal were left out of account, as the ileo-cæcal region was not examined with such care as is now given to it. Of the next two hundred cases, with a standard meal, in many of which castor oil was also used, the append x was seen clearly in a few. Then was begun the use of the barium and buttermilk meal after preparation by castor oil. In the fourth hundred cases the appendix was seen 24 times; in the fifth hundred 35 times, then 54 times; then 72 times; and in the eighth and last hundred 86 times. An account was next given of the radiography of the normal appendix, and photographs were thrown on the screen. The paper then described the examination of cases of appendicitis. In acute appendicitis the patient was not usually fit to be X rayed, neither was such a method of diagnosis needed. In chronic appendicitis X ray examination had been found of great value, especially in the subjects of vague abdominal symptoms of unknown cause. In 36 cases a diagnosis of chronic appendicitis had been made and confirmed by operation. Radiograms of many of these were shown, accompanied by coloured drawings of the appendixes after removal. The chief points to which attention should be paid were: 1. The filling and emptying of the appendix; delay. 2 Shape; constriction and dilatation. 3. Fæcal concretions; vacuoles. 4. Mobility. 5. Hyperactivity; spasm. 6. Tenderness. 7. Position. These features were placed in the order of their importance in a series of cases. Each was illustrated by lantern slides and clinical details. The signs of present inflammation were, in addition to pain and other clinical symptoms: a tender point (though tenderness required care in its interpretation) and varying dilatation of the lumen from hyperactivity and spasm; whilst evidence of former disease, recent or remote, was given by concretions, abnormal outline, delay in filling or emptying, adhesions, severe kinks, and, in certain cases at least, by the absence of a shadow. The proportion of cases in which no barium sulphate entered the appendix was small when the methods described were used; but it was not thought justifiable in the present state of our knowledge to assume that an appendix was abnormal because it did not fill, though it should be regarded with suspicion, especially if the observation were repeated. The paper was founded on the study of the photographs of about 300 appendixes.

Mr. A. C. JORDAN discussed the paper briefly, and showed some photographs of appendixes in a few of his own cases.

[1] THE LANCET, 1912, i., 47.

[2] George and Gerber: Surg., Gynec., and Obstet., 1913, xvii., 418.

A CLINICAL meeting of the North London Medical and Chirurgical Society was held at the Great Northern Central Hospital on Nov. 14th, Mr. Arthur Edmunds, the President, in the chair. Dr. Alexander Morison and Mr. Fred. Stoker presented medical and surgical matters for discussion. There was a considerable attendance of North London medical practitioners.

IRISH OPHTHALMOLOGICAL SOCIETY.—The opening meeting of this society was held in Dublin on Nov. 8th, after the Montgomery lecture by Dr. Euphan Maxwell, Mr. James Craig (Belfast) being in the chair.—The rules were drawn up and adopted and the following were elected to hold office for one year:—President: Mr. A. W. Sandford, Cork. Council: Mr. J. B. Story, Mr. L. Werner, Mr. J. A. Craig, Mr. H. C. Mooney, Mr. F. H. Crawley. Honorary secretary and treasurer: Lieutenant-Colonel T. H. Delany, I.M.S. (retired), 29, Upper Fitzwilliam-street, Dublin.—Mr. Werner exhibited lantern slides of a case of Cysticercus published in the Transactions of the Ophthalmological Society of the United Kingdom, vol. xxiii., p. 193, and Mr. Story exhibited charts of Fields of Vision in Glaucoma.—Next morning patients were shown at the Royal Victoria Eye and Ear Hospital, amongst others, a patient whose case was published in the Transactions of the Ophthalmological Society, 1891, p. 127, of detachment of the choroid; also two cases of fat implantation, one in Tenon's capsule and the other in the sclerotic after evisceration, the eye in each case being buphthalmic.

Reviews and Notices of Books.

War Surgery from Firing Line to Base. By BASIL HUGHES and H. S. BANKS. London: Baillière, Tindall and Cox. 1918. Pp. 623. 33*s.* net.

A BOOK such as this will serve as an excellent record of the work as carried out by the men who wrote it and of the method that they have chosen as the best for dealing with the wounds of war. The authors have had a considerable experience in war surgery both in France and Salonika, and as a result thereof have come to the conclusion that the best method of obtaining a rapid sterilisation of wounds is by the Carrel-Dakin method, thus allowing of the performance of secondary suture with the consequent early restoration of function of the part affected. They are insistent, and quite rightly, that in order to obtain good results the method should be rigidly carried out after the fashion originally described by the originators. The authors have been fortunate in being able to organise their methods in a given area from the firing line to the base, and thus maintain a continuity of treatment which is not often possible in many of the theatres of war. Under these conditions it is interesting to find that the results that they have obtained correspond to those of others who have adopted the same methods: there are so many difficulties in carrying out the treatment efficiently, combined with the large amount of bacteriological investigation necessary, that the authors are to be congratulated on the results of their efforts. It is with these methods, as applied in their hands to lesions in various parts of the body and in different areas of fighting from the firing line to the base, that this book is largely occupied, and the description is done well.

It is a little disappointing to find, however, that so little attention has apparently been paid to the methods of primary and delayed primary suture, which have so largely supplanted the necessity of secondary suture during the last two years of the war. These methods are coming to the fore as results become better known, and in a book such as this the newest line of treatment should be encouraged. There is also a tendency to decry the value of certain drugs, such as flavine and bismuth-iodoform paste, which in the hands of many have met with considerable success. These are details, however, as compared with the general principles which are laid down and well described in this book. Considering the great difficulties under which the authors must have laboured, far away from books of reference and skilled artists, the production of this work has many remarkable features.

The illustrations, mostly photographs, are numerous and topical; it is a little difficult to account for the comic element displayed in certain coloured drawings, unless it is to remind the surgeon of the wonderful manner in which the soldier puts up with the manipulations that he is compelled to undergo at our hands and the trials that he has to pass through in tropical climates. We should add that the humorous effect is happily obtained. The experience of the authors is emphasised by the description of the methods of treatment of all kinds of wounds in the various fields of warfare, firing line, field ambulance, C.C.S., and base hospital. And to those accustomed to work in France the completeness of the experience with regard to wounds in all parts of the body as embodied in the text will seem remarkable. Not only is the general technique of the treatment of wounds by the Carrel-Dakin method carefully detailed with regard to wounds in general, but its application to wounds of the head, chest, abdomen, bones, and joints (the latter an excellent article) is minutely gone into. Naturally the effort is unequal, but for the most part the principles are sound. Was it necessary to include in the volume a condensation of a text-book on bacteriology? This section, however, will serve a purpose in making complete a book which is the only volume of its size dealing with surgery such as we know it in this war, and will complete a *vade mecum* to those unfamiliar with the methods described.

The Canadian Medical Week. Published under the auspices of the Ontario Medical Association. Toronto: The Macmillan Company of Canada, Ltd. 1918. Pp. 338. $3.00.

THIS stately volume is a worthy record of the Canadian Medical Week, held at the beautiful city of Hamilton, on Lake Ontario, from May 27th June 1st last. It is dedicated to the graduates and undergraduates in medicine of the Canadian universities who have fallen during the war, and on the frontispiece is printed Colonel John McCrae's haunting poem, "In Flanders' Fields." Physicians from every part of Canada and from the United States attended the gathering and discussed many of the burning issues of contemporary medicine. Dr. L. F. Barker's address on the Significance of Heart Murmurs in Recruits, Dr. R. A. Bolt's paper on the Education of the Medical Student in his Relation to Child Welfare, and Dr. T. H. Ames's contribution to the Prevention of War Neuroses, as well as others in the volume, merit a wide circulation. It is noteworthy that the book only contains advertisements "censored by a Special Committee appointed for that purpose."

Anatomy: Descriptive and Applied. By HENRY GRAY. Edited by ROBERT HOWDEN, M.A., D.Sc. Twentieth edition. London: Longmans, Green and Co. 1918. Pp. 1324. 37*s.* 6*d.*

"Gray's Anatomy" maintains its popularity in the hands of its present editor, only 18 months having elapsed since the appearance of the previous edition. About 60 new illustrations have been added and the text is carefully revised. To remind readers of the original author, a short biography of Henry Gray, F.R.S., F.R.C.S., 1827–1861, is given, as well as the names of later collaborators: Timothy Holmes, T. Pickering Pick, and finally, Professor R. Howden, with his two associates, A. J. Jex-Blake and W. Fedde Fedden. The new terminology, introduced in 1913 with the eighteenth edition, is retained presumably until a terminology satisfactory to English-speaking anatomists has been formulated. To this end coöperation with anatomists of America and of the Dominions is most desirable. In the meantime for the sake of the perplexed student, the old terminology is inserted in brackets and both sets of names are indexed.

JOURNALS.

Military Surgeon (Washington, D.C., U.S.A.).—The issue for September has the first instalment of an article on Communicable Diseases in the U.S. Army, by Colonel V. C. Vaughan and Captain G. T. Pratt of the U.S. Army. The principal acute diseases which occurred last winter in the Army in the United States, in the course of which respiratory symptoms were seen, were pneumonia, meningitis, measles, scarlet fever, and diphtheria. Pneumonia stands out with a sinister pre-eminence. It caused 60 per cent. of the total deaths, meningitis 12 per cent., measles 1·1 (but many of the pneumonias followed measles), scarlet fever ½, and diphtheria ½ per cent. Deaths from pneumonia were more frequent than usual among the civil population during that hard winter, but the death-rate in the Army (ages 20 to 30) was ten to twelve times that in civil life at the same ages. Men from rural communities and men from the South were found to suffer most, because, it is suggested, they are less immune to "crowd" bacteria, which flourish among the denser populations, who therefore grow up with an acquired immunity, a theory which gains support from the accurate observations of Dr. J. W. H. Eyre and Captain C. E. Lowe on New Zealand troops in THE LANCET of Oct. 12th. As to prevention, vaccination is asked for, and no reference is made to Colonel Munson's report on the prophylactic value of ventilating tents in the preceding winter amongst the U.S. troops in Mexico. "Bath is best" is an old Scots proverb, and though we trust antityphoid vaccination, we yet strive to give men always clean water.—There is a long paper by Captains W. E. Lee and W. H. Furness, U.S.M.C., on the Evolution of Dichloramine-T as an Antiseptic in Wound Treatment. At the beginning of the war, they say, aseptic primary closure of wounds was attempted, but gas gangrene and other infections occurred so frequently that that procedure was forbidden. Then surgeons tried antiseptics of all sorts—salt packs, flavine, the Reading bacillus, "last and least of all, soap and water," and all this time military arrangements were improving, so that the wounded came more quickly under treatment and the technique of that treatment also improved, so results became wonderfully better. In 1916 wounds were being excised, for it had been realised how much tissue around a wound had been contused to death by the mechanical injury. Besides that, projectiles and fragments of clothing are apt to be infected, and must be removed to prevent harm, so also must splinters of bone or cartilage, severed from their blood-supply, dead, and now only a ready nidus for bacterial growth. Thus the gas bacillus lives and grows in dead muscle. Even with excision not all sepsis can be excluded. If an ordinary wound is treated within three hours so little bacterial growth has occurred that the wound may be safely closed, the tissues being able to deal with the few germs there are.

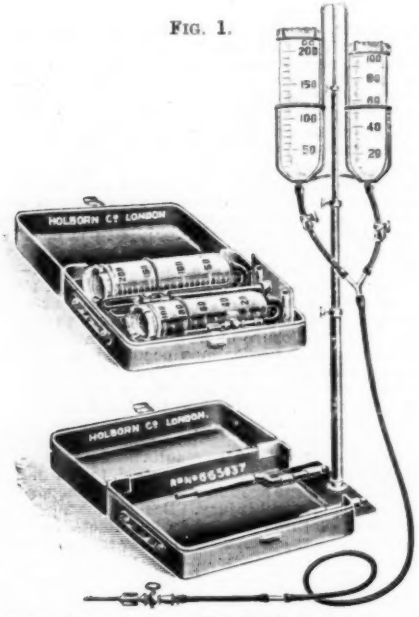
Hence the need for speedy first-aid organisation. After three hours the wound will require some antiseptic. The authors have worked with Dakin's solution introduced by Carrel, who found the extreme of surgical care insufficient unless assisted by an antiseptic. The original antiseptic being Labarraque's solution, it was found, however dilute, gravely to irritate the skin, so Dakin made a neutral solution with 0·5 per cent. chlorine equivalent, which did not irritate the tissue cells but inhibited bacterial growth. This neutral solution was very unstable, so had to be prepared daily. It had a weak antiseptic value, soon passing off, and had to be applied to the wound therefore in quantities frequently. Carrel and Dehelly devised the system of containers and tubes which require care, time, and money. In answering the question why the skin was irritated but not the raw surface, it was found that the chlorine with the proteids in the serum of the wound formed amines, which further research showed could be synthetically prepared, would act as well as the hypochlorite and would not irritate the skin. Chloramine-T was the first of these, a dichloramine from toluol. It is soluble in water and so becomes diluted in the discharge. Dichloramine-T, however, is only soluble in oils and persists longer in the wound as an antiseptic. A suitable oil solvent was hard to find; eucalyptol was used, chlorinated to prevent it from decomposing dichloramine-T, but chlorcosane (a chlorinated paraffin wax) makes a more stable solution, 5 per cent. to wounds, 2 per cent. for throat and nose sprays. It is decomposed by water or alcohol or exposure to light, but keeps well in dry brown bottles in the dark. 19,000 cases have been treated with this in the United States in the last 18 months with every satisfaction. Burns and open wounds are covered with a single layer of mosquito netting soaked in dichloramine-T paraffin wax, whose open meshes permit discharges to pass through into a couple of layers of sterile gauze laid over it. These are changed when required, the paraffined mosquito-net probably after a week. No bandages cover the surface, and cages keep the bedclothes off. But it is the first essential that the case shall be treated as an operation case from the first, and that no precautions of the antiseptic technique be omitted at subsequent dressings. Dichloramine-T is also recommended as a deodorant in malignant ulcerations, and so used gives great satisfaction in the Oncological Hospital in Philadelphia.

New Inventions.

A PORTABLE "606" OUTFIT.

FOR the administration of "606" outside an institution where this work is routine the usual apparatus is rather

FIG. 1.



inconvenient, being bulky and difficult to pack into a handbag. In addition to these disadvantages the setting up of the apparatus usually takes an amount of time which cannot well be spared, and for casual work of the kind mentioned the surgeon is apt to prefer "914," which can be given with a Record syringe but, given intravenously, is not so permanent in its effects. In order to overcome these disadvantages I have devised an apparatus that can be made much more portable on the lines suggested in Fig. 1, and the whole outfit is contained in two boxes which can easily be slipped into an ordinary surgical bag and set up at the bedside in a few minutes.

FIG. 2.

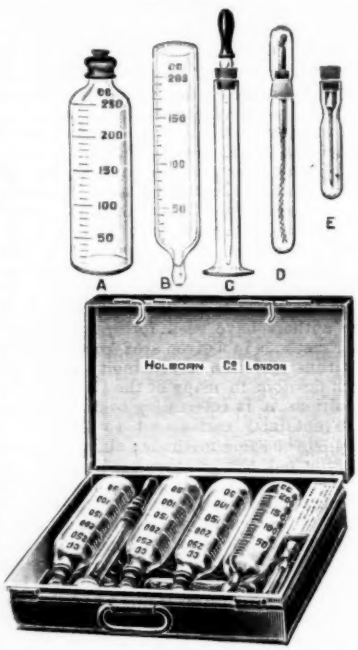


Fig. 1 shows a "606" and saline funnel, such as is used in military hospitals suspended on a frame carried on a telescopic stand which is screwed into the hinged end of the box. The funnels are set up at home with the straining gauze in position at the top of each and the rubber tubing attached. The stand is collapsed and the whole turned into the box, which is closed and sterilised in a steamer. At the bedside the box is opened and its hinged end carrying the apparatus turned down and fixed in position by two sliding bars in the bottom of the box. The telescopic stand is then extended to its full length and the apparatus is ready. The other box (Fig. 2) contains, A, three Soxhlet bottles of 250 c.cm. capacity fitted with Eyre's special rubber caps which are designed to permit of sterilisation without the necessity of opening and closing the bottle; one of the bottles is graduated and is used for mixing purposes, the other two are for saline; B, two spare funnels; C, a cylinder with foot, fitted with a graduated pipette and containing caustic soda solution; D, an iodine pencil as devised by Major C. F. White for sterilisation of the puncture site; and E, two needles in alcohol. In the remainder of the space are packed ampoules of "606," a small dressing, and a tourniquet. A, B, and C are sterilised in a steamer and, thanks to the special caps on A, these can be carried quite safely in the box provided. The "606" is mixed in the graduated bottle, which should contain about 50 c cm. sterile distilled water, the cap being removed, the powder poured into the water, and the cap replaced for shaking. The soda is then added to alkalise and the necessary amount of saline to bring to the required dilution, leaving enough saline for the saline funnel.

The apparatus is made by the Holborn Surgical Instrument Company, London.

L. W. HARRISON,
Brevet-Colonel, R.A.M.C.
Rochester-row.

GUY'S HOSPITAL: MEDICAL RESEARCH FELLOWSHIP.—A fellowship, to be known as the "Hilda and Ronald Poulton Fellowship," has been founded at Guy's Hospital in memory of the late Lieutenant Ronald William Poulton Palmer, B.A., Royal Berkshire Regiment, the International Rugby footballer, killed in action in Flanders on May 5th, 1915, and of his sister, the late Mrs. Emily Hilda Ainley Walker, who died in August, 1917. The object of the fellowship will be to investigate the origin, progress, treatment, and cure of obscure diseases in man; its annual value will be £150. It may be held simultaneously with a teaching post at the medical school, with the condition that the fellow devotes at least half his time to research.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 23, 1918.

The Work of the Medical Research Committee.

THE end of the war marks an epoch in the work of the Medical Research Committee set up under the National Health Insurance Act of 1911. The Committee did not actually come into being until September, 1914—that is to say, the end of the first month of the war—and its fourth annual report, which we have before us, therefore comes at the end of the fourth year of war. The Committee has so far lived under exceptional conditions. But, while the war has closed, the Committee's work goes on, and not the least interesting part of the report is its concluding paragraph in which the conditions of peace and war are compared. It is only long familiarity which has deadened our sense to the volume of avoidable suffering and economic loss arising from disease in civilian life, and the Committee justly counts this volume of suffering in the same order of magnitude as the appalling casualties and diseases of warfare. The Committee looks forward eagerly in the report to the ending of hostilities and to the opportunity which will then arise of bringing State resources to the assistance of medical science as a whole. But at the same time an optimistic note is struck in regard to the lessons learned during the four terrible years which are past. The violent disturbance of the peaceful course of scientific work has not been without compensation. Only during the war has the principle gained general acceptance that action to be effective requires guidance in the light of knowledge gained by scientific inquiry. The service of bacteriology to medicine was well recognised before the war, and it has continued throughout the war to rise in esteem, yet physiology during the same period may be said to have found itself—or rather to have obtained immediate and practical objectives. The physiologist has brought his knowledge to bear upon the urgent needs of warfare. The names and constitution of the various special committees, dealing with such wide subjects as shock, chemical warfare, air problems, industrial fatigue, which we take the opportunity of printing on another page, are the best testimony to this fact. These special committees have been largely in the nature of round tables at which discussion on methods has elicited mutual criticism and help. Defects have been promptly cleared up by frank discussion instead of by lengthy argument or polemic in print. Some may think that in avoiding the washing of dirty linen in public these committees have also concealed from their medical brethren the interesting stages by which results have been reached, but of the value of the final results no one can stand in doubt. The work of these committees is analogous to that of certain informal clubs composed of young medical men keen on problems whose pursuit was not bringing material reward. Such clubs were in existence before the war, and they have been too few among us.

But the research work planned by the Committee to bear upon the welfare of the civilian community has, of course, suffered, and suffered grievously in its four early years of existence. Nevertheless, in two directions at least—namely, tuberculosis and rickets—this work has gone on during the war, although in decreased measure. Dr. J. BROWNLEE'S study of the epidemiology of phthisis has recently been completed and issued as Special Report No. 18, and the work of the committee on the relation of phthisis to particular occupations has been taken up again, and will soon form the subject of a further report, of which Professor B. MOORE'S contribution to THE LANCET of Nov. 9th may be considered as an advance instalment. A report upon the influence of social conditions on rickets has already been summarised in our columns, while Dr. E. MELLANBY has continued his studies of the dietetic factors which play a part in its production. This work also is now ready for publication. We hope that the 1914 programme may soon be resumed in its entirety and in more favourable circumstances.

Even an incomplete summary such as this of the work of the Medical Research Committee cannot conclude without an expression of heartfelt satisfaction at the establishment of a *Centralblatt*. The Medical Supplement of the Official Review of the Foreign Press is its present cumbrous title, and the first number, which appeared on the opening day of the present year, was felt to supply a want patent to every scientific worker in medicine. Distributed at first among military hospitals and laboratories, the Medical Supplement was soon issued for sale by H.M. Stationery Office, and no one who has had an opportunity of comparing the abstracts with the original articles can fail to be struck by the fairness and the ability with which the work has been done and by the absence of that tendentiousness which is incompatible with the true scientific spirit and which has estranged so many from the *Centralblatt* on the German model. At the same time, the Committee permits itself to observe with satisfaction that no striking gains in our knowledge or in our methods appear to have come to us from enemy sources. Although we have been modestly willing *ab hosti doceri* the gain in alleviation of the sufferings of war seems to have been largely on the other side. Possibly the enquiry into the epidemiology and bacteriology of influenza, abstracted on another page of our present issue, may have its practical lessons for us. This work of the Medical Research Committee is, we think, likely to develop as time goes on, especially in view of the facts that under the terms of the Ministries of Health Bill the Committee's work will be carried on directly under the Privy Council and that the Committee itself proposes to work in close coöperation with the Advisory Council of Scientific and Industrial Research established in 1915.

The Medical Parliamentary Committee.

A MEETING of the medical profession was held at Steinway Hall, London, on Oct. 1st, having for its object the acquiring of more adequate representation of the medical profession in Parliament. The meeting, the proceedings at which were reported in THE LANCET, was summoned informally and was well attended. Sir HENRY MORRIS, who presided, set out the various arguments for believing that the time had arrived when the medical profession should take steps to show its corporate value to the public and the State through the presence in Parliament of competent members of the profession. Mr. E. B. TURNER followed with an eloquent exposition of the influence that the doctor must have with the public when setting out in plain terms the real meaning of medicine and the aims of scientific pathology. Dr. CHRISTOPHER ADDISON, Minister of Reconstruction, moved at the meeting a successful resolution to the effect that "in the interest of national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." A desultory debate followed, when a committee was formed by the meeting, having a general mission to consider the claims of medical men for election to the House of Commons. It was agreed that this committee should report at a later stage to the whole constituency upon any steps taken. The constitution of the committee, as indicated in our report of the proceedings of the meeting, included representatives of the British Medical Association, but in deference to the views of the Council of the Association, such representation has now been withdrawn.

Several meetings of the committee have been held, the proceedings at which will be laid later before a general meeting of the medical profession; but it seems right that the gist of the work done should be published without further delay, having regard to the fact that a General Election is upon us. The committee, now known as the Medical Parliamentary Committee, has consequently provided itself with the names of medical men who are already willing to place themselves at the immediate disposal of the Whips in the unforeseen event that between now and Dec. 14th any one of these doctors may be adopted as an official candidate for a seat. It is, of course, extremely unlikely that this contingency should occur, as in those localities where elections are being fought the contesting parties have long ago chosen their champions. Moreover, it is easy to see that the names which the Medical Parliamentary Committee may be able to send in to the Whips must constitute a short list, for few medical men who could have a chance of being selected by the Whips to fight even an off-chance will be found able to lay their professional interests aside at a moment's notice and plunge into the whirl of a contested election. The work done by the Medical Parliamentary Committee must be considered merely preliminary, although the slight chance of some immediate accomplishment has been prepared for. What the Committee requires now is, first, adherents to the movement; and, secondly, a list of medical men who at future elections will be willing to place themselves at the disposal of Party Whips to contest constituencies. The introduction of the word "party" will make all medical men wince, but it should not make them stand aside from an effort to do public good, for the Medical Parliamentary Committee professes to make an organised attempt to give the opinions of the medical profession a right influence in public affairs. The medical profession agrees that it requires a louder and clearer Parliamentary voice; it must also agree to obtain that voice in accordance with prevailing customs. No man will get into Parliament on his medical claims. And from our point of view the ideal medical man in Parliament should not represent medicine only; he should be the interpreter of medical thought and aims to his fellow legislators. This he can easily be while assenting to a general party creed, provided that in every word that he utters, and in every idea that he supports, the predominant claims of national health are obvious. Such a legislator can conform to party politics and can keep his necessary pledges to his constituency and to his political organisation, while remaining faithful to ideals outside and above such pledges; and his presence in Parliament upon such terms might be a great destroyer of the evil influence of party. For granted that the health of the people is equally wanted by all political divisions and subdivisions, the medical man in Parliament who, while belonging to a party, was known to place the general weal above the party tactics would be an excellent type to imitate. The democracy of the future is sure to make increasing use of special knowledge directed to generally benevolent ends, while setting a decreasing value upon political machinations. The doctor in Parliament, as we have drawn him, fits such a picture exactly.

At the meeting at Steinway Hall Sir WATSON CHEYNE indicated how useful it would be to such members of the medical profession as happened to be in Parliament if a considered view of medical questions were placed at their disposal by an authoritative body. The Medical Parliamentary Committee by the strength of its adherents should grow into such a body, and we can conceive its utility to the nation as thus becoming something very large indeed. No individual Member of Parliament, even though a medical man, can possibly follow the operations of an elaborate Bill as it may affect the medical profession directly, and therefore as it may affect the whole of the country indirectly. He wants counsel, as Sir WATSON CHEYNE suggests, and a Medical Parliamentary Committee on which there sat men, medical Members of Parliament among them, who could assemble, codify, and articulate a real medical view upon general questions at issue, would be of the first value to the country. In an interesting article which appeared in the *St. Bartholomew's Hospital Journal* for September Sir WILMOT HERRINGHAM, himself a candidate for Parliamentary honours, speaks of the medical Members of Parliament forming themselves

into a private committee. Such an advisory board might be of no great weight scientifically—for no man, to repeat ourselves, can enter Parliament on his medical claims—unless reinforced from without. But from a Medical Parliamentary Committee, such as could be formed if all medical men would help in its promotion, the medical advice would be of the highest worth. Now to constitute a Medical Parliamentary Committee of this order will need the coöperation of all the medical profession, whose powers should be set in action from as many directions as possible. The Parliamentary Elections Committee of the British Medical Association will, we trust, be willing to join a movement whose main objectives must be identical with their own, and which by the elasticity of its constitution can enter into wide public relations while retaining the essential medical spirit.

Annotations.

"Ne quid nimis."

THE WAR CASUALTIES.

Mr. Macpherson, Under Secretary for War, made a statement on Tuesday last in the House of Commons concerning the British casualties in the war, including Dominion and Indian troops. The figures, which were up to Nov. 10th, 1918, are necessarily incomplete, but the totals for all theatres of war were given as follows:—

	Officers.	Men.
Killed (including died from wounds and other causes)	37,876	620,828
Wounded	92,664	1,939,478
Missing (including prisoners)	12,094	347,051
Totals	142,634	2,907,357
Grand total	3,049,991.	

An analysis of these terrible totals will be found in our Parliamentary report.

REHABILITATION OF THE DISABLED SOLDIER IN THE U.S.A.

A SYSTEMATIC attempt is being made in the United States of America to rehabilitate their soldiers who have been disabled in action in the European war "to the point of maximum functional restoration, both mental and physical." An educational section in the office of the Surgeon-General of the American Army supplies the means to enable every returned soldier to add to his knowledge, technical or general, so that on return to civil life he will have at his command the necessary mental equipment to carry on. The section is in close touch with the medical and surgical staffs of the general hospitals. The medical staff is able to indicate the muscular re-development desired and to supervise the restoration of function, so that excessive strain may not provoke harm. At the same time the educational director and his assistants fire the patient's ambition, show him what he can do, explain the means of doing it, and lead him step by step to the finished product of his mind or hand. There are four main groups in this Educational Service. One centres on the problem of preventing a disabled soldier from training for a job which his qualifications and aptitudes do not meet; it seeks to stop him from aiming too high or too low. Another provides instruction in elementary, high school, and professional subjects. In the third group are technical subjects, such as engineering, agriculture, and commerce. The fourth is concerned with recreation and physical training; it supervises games, prescribes military drill, and arranges entertainments in which the disabled men are actors as well as spectators. From simple games and light manual tasks the patient is gradually led to some form of effort demanding thought and care. Most of this preliminary work is under the direction of the reconstruction "aides," who are women specially trained for this work. Then in turn come tasks in the ward, followed by others in class-room, shop, or garden. The work is growing. At the present time more than 300 disabled men are taking bedside and ward occupations, and more than 1500 are busy in shops or learning trades. In not a few instances, when finally discharged from the Army, they will be found to have increased their previous earning capacity. The ground work is thus being laid on which to build an efficient economic unit.

SERGENT'S "WHITE LINE" IN SUPRARENAL INSUFFICIENCY.

Dr. E. Sergent was the first to draw attention to the presence of a white line on the skin produced by pressure as an indication of impaired function of the suprarenal capsules. He made this discovery by accident (*Presse Médicale*, Nov. 25th, 1903) while endeavouring to elicit the "red flush" in a case of meningitis, and he interpreted its occurrence as a condition of arterial hypotension with consequent dilatation of the peripheral capillaries, in which a mechanical stimulus to the skin produces local reflex vaso-constriction. The importance of the sign lies in its alleged appearance in suprarenal derangement, even when the melanodermia typical of Addison's disease is not present. The study of the phenomenon has led, in fact, to a recognition of the frequent occurrence of suprarenal insufficiency in various morbid conditions, especially in infective diseases and intoxications. A bronzed skin does not constitute in itself the whole suprarenal pathology; it is neither necessary nor sufficient to establish the diagnosis of a capsular lesion, while asthenia is of primary importance in the symptom-complex of suprarenal insufficiency, and this asthenia is usually associated with hypothermia and arterial hypotension. According to Dr. Sergent, the sign of the white line, when it is present in a characteristic form in the course of an infective malady or acute toxæmia, associated with asthenia and arterial hypotension, indicates changes in the suprarenal cellules: the greater the hypotension the more the line is distinct, broad, and lasting; and it is especially in cases of typhoid fever that these characteristics are most marked. The suggested cause of this sign finds its confirmation in the fact that adrenalin administered to the patient causes the disappearance of the white line, together with the hypotension. Further observations on Dr. Sergent's white line have called forth much criticism as regards its inconstancy or its absence in many cases of suprarenal insufficiency, or its true interpretation. Professor R. Massalongo,[1] of Verona, has done some service in investigating a large number of cases with a view to clearing up these points of difference. He studied the phenomenon of the white line, produced not by

[1] La Riforma Medica, August 24th, 1918.

scratching the skin with the nail, but by rubbing it lightly with the finger tip or some blunt rounded instrument. Out of 400 cases of various diseases he found the white line in an unequivocal form only in 30 cases, and even then often in a transitory and irregular manner; and of these, 22 were cases of typhoid and paratyphoid fever, which constituted 120 of the whole number. His observations led him to the conclusion that diminution of the angiotonic function and cardiotonic power may exist without the presence of the white line and of other symptoms of suprarenal inadequacy, and that arterial hypotension, asthenia, and collapse are not the exclusive function of this inadequacy, since they occur in the course of acute infective diseases independently of it. He found the presence of the line always associated with arterial hypotension and frequently with other symptoms attributable to suprarenal derangement, which, on the other hand, may exist without its presence. Hence by its rarity, inconstancy, and transiency, by its presence or absence in equal proportion in cases where changes in the suprarenal capsules were indisputable, the white line can only be credited with a relative diagnostic importance and significance and cannot be considered as pathognomonic. It has, however, some value from a prognostic point of view, since its maximum frequency is met with in cases of serious import with almost invariably a fatal issue.

HORMONES IN THE CLIMACTERIC.

THE work of Seitz, Wintz, and Fingerhut has led them to believe that ovarial extract is only potent in so far as it contains certain chemical bodies present in the corpus luteum. Two of these have been isolated, luteolipoid and lipamin, both of which have a specific influence on menstruation, the one acting as a hæmostatic, the other encouraging the flow of blood. The firm of "Ciba," in Basle, has put preparations of both of these drugs on the market in tablet form—"sistomensin" containing luteolipoid and "agomensin" containing lipamin. In the *Correspond.-bl. f. Schw. Aerzte* for Oct. 26th Dr. O. Burckhardt-Socin, of Basle, records his experience of sistomensin in five severe cases of climacteric disturbance—flushing, palpitation, sweats—and in two cases of excessive loss at the onset of menstruation in young girls. In each case the symptoms were rapidly relieved, and success in these led the author to try the drug in a case of bleeding fibroid which he would otherwise have sterilised with X rays. Bleeding and pain were both rapidly relieved, and Dr. Burckhardt-Socin recommends a trial of the hormone to his colleagues in similar cases. If further experience should prove the truth of these observations this method of treatment may prove of great value. It is important, however, to remember that there are many authorities who maintain that the internal secretion of the ovary is manufactured not only by the corpus luteum but also by the atretic Graafian follicle cells which have a structure identical with that of the lutein cells. For this reason it would appear probable that preparations made from the whole ovary are more likely to give constant results than those made only from the corpora lutea. As we are quite ignorant whether the secretion of the ovary acts directly on the organism or acts by balancing or influencing the secretion of other internal glands, any conclusions drawn from clinical experience possess many possibilities of error. A further serious drawback hitherto has been our ignorance of the chemical nature of the secretion of the ovary. If the bodies now isolated can be shown to have a fixed composition, and the results obtained are found to be constant, a very definite addition will have been made to our knowledge. It is interesting to note that some gynæcologists are in favour of ovarian extract from which the corpus luteum has been entirely excluded. Indeed, one of the difficulties in admitting the action claimed for the corpus luteum extract lies in determining in what degree of development the corpus luteum is at any given time, as it is impossible to tell by inspection whether a corpus luteum is in process of formation or of involution and disintegration. Many observers, in treating the symptoms of vasomotor disturbance following the removal of the uterus, have been struck by the conflicting results obtained in different cases by the administration of corpus luteum extract, a result which may be explained by the antagonism of the two substances now isolated if one or other happens to be in excess. We hope that other practitioners who have an opportunity of using these preparations will publish their results, so that further light may be thrown upon this interesting method of treatment.

THE OBSERVATION OF THE LIVING NERVE FIBRES OF THE CORNEA.

Dr. J. Strebel, of Lucerne, claims, in a recent number of the *Corresp.-bl. f. Schw. Aerzte* (p. 1442) that he can demonstrate the nerve fibres of the living cornea by means of focal illumination with a Nernst lamp and a corneal microscope. They appear as very fine, silver-grey, opaque, round little bundles in the depth of the corneal parenchyma, at the limbus; they run a wavy course, coming nearer and nearer to the surface as they extend into the cornea, until they end immediately under the conjunctiva. A certain number branch dichotomously at nodes, the branches forming an angle of from 40 to 50°. Occasionally the bundles are surrounded for the first millimetre or two of their corneal course by a sort of sheath-like appearance which is sharply separated from the nerve bundle. Strebel recognises this to be the medullary sheath. He therefore challenges the statement that the nerves always lose their medullary sheath before entering the cornea, and recalls the fact that in some cases the fibres of the optic nerve likewise retain their white sheath after entering the eyeball. The nerves cannot, he says, be mistaken for obliterated vessels by anyone who observes them carefully. Their opaque, silver-grey look, their wavy course, and their dichotomous branching, when it occurs, are all characteristic features. Although this observation dates back to 1913, no notice seems to have been taken of it in this country.

EXTENSIVE OPERATIONS ON THE UPPER LIMB.

IN our present issue Mr. J. W. Geary Grant records three cases in which he performed extensive operations on the upper limb for the removal of malignant disease. In one he performed Berger's operation, or removal of the whole upper limb with the scapula and half the clavicle. In the second case he amputated at the shoulder-joint, and in the third case he removed the scapula. Berger's operation, or interscapulo-thoracic amputation, is a very extensive procedure and the resulting shock is often extreme, though this may be mitigated to some extent by Crile's method of "nerve-blocking." All the modifications of the operation which have been introduced are intended mainly to diminish

the amount of shock. In disarticulation at the shoulder-joint there is much less shock, but the bony surfaces left, notably the prominences of the acromion and the coracoid process, present a very awkward shape. Excision of the scapula is of the greatest value only in cases where the growth is strictly confined to that bone, but in the case recorded by Mr. Grant the glands of the axilla were affected, so that not only at the primary operation but also at two subsequent operations glands were removed from the axilla and from the posterior triangle of the neck. The choice between these various operations is generally dictated by the extent and the limitations of the disease, which clearly show how much must be removed. Though the shock is great with Berger's operation, yet the clean sweep made of the contents of the axilla is in marked contrast to the slow dissection necessary when the axillary glands have to be removed without injury to the vessels and nerves. There is a further point in Mr. Grant's cases worthy of note, and this is that in each case a number of exposures to X rays were given to the affected part, either for the removal of recurrent nodules or for a prophylactic purpose. The benefit of the use of X rays in the prophylaxis of recurrence of malignant disease cannot be considered to be proved, but the method has logical reasoning behind it, and time will show its real value. Mr. Grant is to be congratulated on the results obtained in all of his cases.

GLANDULAR TUBERCULOSIS IN RELATION TO PHTHISIS.

Wallgren[1] has made an inquiry as to the fate of over 500 patients at the surgical clinic of Upsala, Sweden, operated on in the period 1885–1905 for tuberculosis of the lymphatic glands; the inquiry bore special reference to the subsequent occurrence of pulmonary tubercle. He was successful in getting particulars of 224 out of the 500. The number becoming tuberculous was found to be 62—46 from pulmonary phthisis, 9 from miliary tuberculosis, and 7 from tuberculous meningitis. This proportion—over a quarter—is obviously greater than the incidence of pulmonary tubercle in the general population. The disproportion must be discounted a little because 29 of the 224 had signs of tubercle in their lungs while in the clinic. This group showed very heavy after-mortality. But of another group in which the case-notes contained express mention of the lungs being healthy, 11 per cent. became consumptive. The writer concludes that, on the whole, individuals who have had adenitis are more likely than indifferent persons to get consumption, although he does not deny that occasionally, in particular cases, an attack of adenitis may even confer a certain amount of protection against the more serious disease, a species of immunity which has been invoked by Marfan and others. Lastly, those individuals whose adenitis recurred after treatment became consumptive oftener than did the rest. It is a pity that *enquêtes* such as the above are not made oftener, since they have an actuality, an *a posteriori* quality, which is denied to laboratory experiment. So far as the above investigation goes, it confirms the praiseworthy caution of the attitude which refuses to act on the assumption that tuberculosis in early life confers later protection, and builds rather on the obvious facts that infection with tuberculosis having once taken place is extremely likely to recrudesce even after long periods of apparent cure.

[1] Wallgren: Centralblatt für die gesamte Tuberkulose-Forschung, July 31st, 1918.

PUBLIC HEALTH IN EGYPT.

Appointment of Commission.

IN June, 1917, Sir Reginald Wingate, the Egyptian High Commissioner, took the prescient step of appointing a Commission to inquire into the Public Health Department of Egypt, for the present condition of this Department was, in his opinion, capable of improvement, while its future organisation offered problems of a difficult administrative and scientific character.

It was not, however, until June of this year that the preliminary arrangements were completed and the terms of reference settled, when the Commission was duly appointed, as was announced in THE LANCET, with the following composition: President, Lieutenant-Colonel Andrew Balfour, R.A.M.C., Director-in-Chief, Wellcome Bureau of Scientific Research; members, Lieutenant-Colonel G. E. F. Stammers, R.A.M.C.; Mr. E. S. Crispin, Director of the Medical Department of the Sudan Government; and Dr. Charles Todd, Director of Laboratories in the Egyptian Public Health Department.

The terms of reference of the Commission were: (1) To consider the organisation and duties of the Public Health Department and its relations with other departments concerned in public health; (2) to make in general terms suggestions for increasing the efficiency of the Department: (3) to indicate the nature and number of the official appointments to the Department which seem to be required, without nominating persons to fill them. To these ends the Commission was empowered to call the necessary evidence and have access to documents in framing a report to be sent to the Prime Minister or President of the Sultan's Council.

The Commission got to work in a practical manner, determining to make themselves personally intimate with all the existing details and conditions. They instituted a series of inspections in Cairo, Alexandria, and the provinces, thus familiarising themselves with the varying aspects of the work discharged by the Public Health Department. They met on 76 occasions, and the result is the return to the Prime Minister of a very outspoken series of findings.

Report of Commission: Scheme of Central Health Organisation.

The Report begins by recording the impression that the general plan devised by the Public Health Department for dealing with the many and difficult health problems of Egypt was a sound one. It had been valuable in checking the spread of cholera, plague, typhus, and relapsing fever; it had none of the haphazard character with which it is generally credited; and for future needs its scheme is well fitted both for adaptation and development. The Commission finds, in fact, that the future needs of the country from the health point of view have also received great attention, while they single out for special and favourable mention the last Assistant-Director of the Department, Dr. Cyril Goodman. But the Report states that the Department suffers from having no proper official status; being not an entity but a branch of the Ministry of the Interior, it has no direct official access to the High Commissioner, while the channels—namely, the Adviser or the Under-Secretary of State for the Interior—are without the necessary technical training to understand the needs of the Public Health Department. Upon the outbreak of war the efficiency of the Public Health Department, already hampered by the multifarious nature of its duties, was gravely affected, says the Report, by the fact that its officials were allowed to be seconded for duty with the troops at the very moment when the personnel of the Department should have been strengthened instead of weakened, although effective organisation managed to avert any disaster. With general reference to the present-day conditions in Egypt so far as they have a bearing on public health, the report is sanguine. Developments in roads, railways, and canals will occur, having regard to the successful issue of the war, while education in modifying the outlook of the Egyptian peasant and rendering the future of sanitation more hopeful is expected to have a powerful effect. "It is obvious," says the Report, "that the signs are propitious, and though, owing to the war, the time may not yet be actually ripe for extensive modifications in health organisation, yet it is clear that the present period of change and advance offers special facilities for the consideration of a scheme of reform." But immediately afterwards the Report speaks in

almost unmeasured language of the plague of filth in Egypt, and the first section concludes by unanimous agreement that a Ministry of Health is essential for securing proper sanitary reform in the Protectorate.

A scheme for a central health organisation is then outlined. It commences with the statement that the Ministry of Health must be a separate bureau with an Under-Secretary of State at its head as President. Immediately below him it is suggested there should be a Director-General of Health, who is intended to be the main driving force in the Ministry, as his duties will require him to coördinate the work of important subordinates as well as to prepare the annual Budget. The President will also have the advantages of a Technical Adviser, who, under the alternative title of Director of Medical Intelligence, will conduct a bureau of information, control the laboratories and research work, keep in touch with scientific developments in other countries, and be responsible for an educational museum. The Central Board of Health, it is suggested, will be completed by seven officers appointed as directors respectively of Sanitary, Epidemic, and Medical Services, of Lunacy, Medical Education, Public Health Laboratories, and Sanitary Engineering. The first three of these Directors being designated as *ex-officio* members of the Board, it would seem that it is intended to co-opt the others as occasion requires. A Secretary-General is added not only to manage the records and deal with all questions relating to subordinate personnel but also to sift the work of the Director-General, who might otherwise become overburdened with detail. The Report goes very carefully into the separate and combined duties of these various important central officials, indicating that technical inspection will undoubtedly be needed in many directions, as for provincial and ophthalmic hospitals and pharmacies, schools, and food and water control. The establishment of a chair of Hygiene in the Kasr-el-Aini School of Medicine and of a Diploma in Public Health is strongly advocated. The Report then passes to the consideration of the provincial organisation of public health in Egypt.

Provincial Administration.

The Report becomes very detailed in character when dealing with provincial organisation for the public health of Egypt, for here, rather than in central administration, are the chief defaults to be found, and here reform will get its quickest returns. The first weakness noted in provincial administration is the paucity of British Provincial Inspectors. These officers are few in number, do not live permanently in their districts, and are kept so constantly moving about by the multifarious nature of their duties that they rarely get into close touch with any section of the population. "A good type of man," says the Report, "has undoubtedly been an officer of the Royal Army Medical Corps, possibly in part because he has received a special training in hygiene and understands discipline. This source of supply should be readily available in the future." Reference here must clearly be made to medical men who have received temporary commissions in the Royal Army Medical Corps during the past four years, because there could not possibly have been any successful demand made previous to the war upon the Royal Army Medical Corps, whose cadre was then lamentably short. The Report continues: "The posts should be filled by men of about 25 years of age, and they should preferably have held some hospital appointment before joining the service of the Ministry. It would be a distinct advantage if they possessed diplomas in public health or in tropical medicine and hygiene." Such men will not be found in any quantity relinquishing at the age of 25 the Royal Army Medical Corps, but it seems possible, if the Egyptian bureau of health comes into rapid being, that British Provincial Inspectors might be obtained from among those who have held temporary commissions. The sort of work indicated should be quite attractive to many after their military experiences, but if Egypt is to get any large supply the conditions of service must be inviting.

The Report indicates that these Divisional Inspectors, as they are officially called, should be first placed under a senior officer so as to become familiar with Egyptian manners and to acquire Arabic, while arrangements, it is proposed, should be made whereby they can visit Cairo in rota and get an insight into the higher machinery of the service. The general duties of a Divisional Inspector may be described as those of a medical officer of health of the *Mudiria* (province or county). The Report recommends not only that there should be many more Divisional Inspectors, but that they should be better paid and that there should be a chance for Health Inspectors in the Mudiria (who are Egyptian doctors and next in rank to Divisional Inspectors) being raised to the position. Below the Mudiria Health Inspectors comes the *Markaz* doctor, on whom at the present moment, and for very low pay, there fall the private practices in the Markaz as well as much public health work, care of schools and prisons, registration duties, and medico legal work. A Markaz, it may be said, is a district of a province, and may contain many large villages. Some of the Markazes have, we understand, as many as 80,000 inhabitants. The Commission responsible for the Report have perhaps devoted more time and thought to the remedy of the Markaz conditions than to any other part of their work. They obtained valuable evidence and arrived at the conclusion that the best course to pursue eventually would be to divide the Markaz doctors into two categories according to their work, (*a*) Sanitary and (*b*) Medical. The (*a*) Markaz doctor would under the scheme be in sanitary charge of public works, excluded from private practice, and be responsible for general sanitation, notification and public treatment of communicable disease, vaccination, quarantine, and care of pilgrims. The (*b*) Markaz doctor would be in charge of the medical side of some of this work—namely, the treatment of communicable disease, the medical work done in prisons and schools, the examination of prostitutes, and all medico-legal work. He would be, of course, allowed private practice, which would, as stated, be denied to the (*a*) Markaz doctor, to whom, however, promotion to the Mudiria Health Inspectorships would be open. The Commissioners recognise that at the present time this scheme is not feasible, but suggest that it be given a trial in certain suitable areas. To meet immediate needs they propose a large increase in the number of Markaz doctors, whose duties would thus be lightened in some measure. A notable recommendation in the Report is the introduction of qualified British sanitary inspectors—i.e., men of the N.C.O. class—both in the case of the provinces and the large towns. In the former they would be attached directly to the British Divisional Inspectors and would supervise the work of the Egyptian inspectors of nuisances, who at present do not exist in the provinces, and whose creation is strongly urged.

Provision is made in the Report for the institution of training centres in the large towns, where the methods and appliances of sanitation can be taught to these inspectors of nuisances. An eloquent plea is here founded on Lord Kitchener's latest work for village sanitation service. The authors of the Report protest against allowing the fellaheen to live under existing sanitary conditions. Proper village water-supplies, incinerators, latrines, and conservancy systems are required to make Egyptian village life less of a sanitary scandal.

Concluding Remarks.

The various departments of medical service receive detailed notice—the department of epidemic service, of hospital management and inspection, of police, prison, and railway medical service, of school inspection and other subdivisions of medical work are all carefully noticed in the Report, as well as such subjects as medical schools and research laboratories, public health laboratories, and vaccination institutions. A special section of the Report is devoted to the public health of Alexandria, Cairo, and other large towns. We hope that the Report will soon be printed and available for the study of the profession. It is an outspoken document, covering a large amount of ground and giving information in a readable and intelligible form, which is valuable to all sanitarians as well as to those whose interests lie specially in Egypt. We trust, therefore, that the Report will not share the ill-fortune of many of its similars and remain the mere literary record of an ideal. It can easily be understood that the unification of health activities in such a country as Egypt constitutes a grave problem, but it is exactly the sort of problem which the British mind is best fitted to tackle. If those in authority are prompt in translating the recommendations of this Report into the legislation of the Protectorate their reward, in the future saving of trouble, will be very great.

Miss Gladys K. M. Simmons, who died of pulmonary tuberculosis at Bournemouth on Nov. 15th on the eve of her 27th birthday, had for the last two years been a valued helper in the editorial work of THE LANCET, although confined to her bed.

A MEMORANDUM ON INFLUENZA
FROM THE MEDICAL RESEARCH COMMITTEE.

THE secretary of the Medical Research Committee has sent us for publication the following summary of recent work done in foreign countries on the epidemiology and bacteriology of influenza.

Etiology and Clinical Course.

At a meeting of the Greifswald Medical Society on July 18th, Friedberger[1] stated that the term "grippe" was of French origin, being derived either from "gripper," to "seize," or from an insect called "grippe" which was regarded as the cause of the disease in the middle of the eighteenth century. The name "influenza" originated from the expression *ab occulta coeli influentia* used by the Greifswald physician, Calenus, in 1597. In a note on the history of influenza in Schleswig-Holstein, Hanssen,[2] of Kiel, states that he has found records of a "Spanish sickness" in 1566, 1580, and 1592, when the disease spread very rapidly and claimed many victims.

Orticoni, Barbie, and Leclerc,[3] in a note on the microbial flora of influenza, state that in addition to the usual micro-organisms of acute respiratory affections, such as pneumococci, streptococci, and pneumobacilli, they were able to isolate Pfeiffer's bacilli from the blood and pleural fluid from a certain number of influenza patients. It was chiefly towards the end of the disease and in the severest cases that Pfeiffer's bacilli were found, and almost always in association with other micro-organisms. Further investigations are needed to determine whether Pfeiffer's bacillus plays the principal rôle or is only of secondary importance in the etiology of influenza.

Florand[4] records cases tending to show that the present epidemic, which at first was so mild, is assuming a much graver character, especially as regards its pulmonary, broncho-pulmonary, pleural, and cardiac manifestations. The mild nature of the early cases in contrast with the severity of the later ones is also emphasised by Morelli (*vide infra*). Lampe[5] states that while the disease in the majority of cases observed in the Dresden Municipal Hospital ran a rapid and favourable course, 34 per cent. were complicated by severe diseases of the lungs and pleura. The frequency of cardiac dilatation and neurasthenia as sequelæ of influenza is noted by Espina.[6]

The Disease in Italy.

The high incidence of the disease in the Italian Army is shown by the fact that in some divisions the sick-rate was 90 per cent., and in one field hospital 40 per cent. of the staff went sick (Pavesi[7]).

Morelli,[8] in charge of a military hospital at Forli, states that the disease first appeared towards the end of April, and progressively increased in frequency until it reached its height in the last week of May and the first week of June, and then declined until it had almost disappeared in July. The first attacks were so mild that the men were able to keep on duty, but the subsequent cases were obliged to take to bed owing to the severity of the symptoms. Morelli distinguishes three groups of cases: 1. Very mild, ambulatory, almost abortive attacks, the symptoms consisting almost exclusively of an exanthem, enanthem, and slight general symptoms, such as headache, malaise, and a subfebrile temperature. 2. The ordinary type. 3. Severe cases with localisation of the infection chiefly in the respiratory tract. Gastro-intestinal symptoms were never prominent, but involvement of the nervous system was shown by headache, convulsions, and fainting, and in two cases by nuchal rigidity and Kernig's sign. The most characteristic feature of the disease was an exanthem which was present in almost all the cases at an early stage. It was polymorphous in character, sometimes assuming a diffuse erythematous form, varying from a bright red to a pale pink, localised on the face, trunk, and upper limbs, but hardly ever on the hands and rarely on the lower limbs. In some cases it closely resembled measles but was not followed by desquamation. In other cases it assumed the form of urticaria or erythema nodosum or affected the distribution of a prodromal rash of small-pox in the axillæ, hypochondria, and groins. An enanthem was present in all cases and consisted of an erythema involving the soft palate, uvula, and pillars of the fauces.

Influenza in Switzerland and Spain.

In a letter from Zurich, published on Sept. 8th, Häberlin[9] states that the Swiss Army has suffered severely from the influenza epidemic, not only the troops at the frontier being affected, in whose case defective hygiene might be held responsible, but also mobilised divisions in the country, where accommodation was good, and even recruits in barracks. Only isolated cases occurred in June, but towards the middle of July the epidemic broke out with great violence, so that 50 per cent. and more of the men contracted the disease in a few days. Many severe and fatal cases were observed both in the Army and in the civil population. Young persons were much more frequently attacked than the older generation, which had gained immunity from the 1889–90 epidemic. In not a few cases the infection ran a fulminating course, proving fatal in one or two days with all the signs of septicæmia. Many cases which at first seemed mild suddenly developed bronchopneumonia just after convalescence had set in. In some troops three-quarters of the effectives fell sick. The number of fatal cases in the Army was about 500. Medical men formed a relatively high percentage of the victims, especially young doctors attached to hospitals or in the Army. Berne suffered most from the epidemic and the various places in the Bernese Jura, as well as some internment camps, such as the Chateau d'Oex.

On a discussion on the prevailing epidemic held at the Spanish Royal Academy of Medicine, Sanz[10] stated that among 120 cases under his care, 17 were of a hypothermic form, the characteristic features of which were not only the absence of fever but the persistence of a subnormal temperature, a scarcity of respiratory symptoms which were usually confined to the upper respiratory tract, intense pain in the fauces, aphonia, and a paroxysmal cough accompanied by spasm of the glottis. Intestinal disturbance was occasionally present at the onset. He had observed three varieties of nervous complications in this epidemic:—

1. Meningeal. In two cases in which lumbar puncture was performed the tension of the cerebro-spinal fluid was four times higher than the normal.

2. Neuralgic syndrome, chiefly assuming the form of sciatica or trigeminus neuralgia. In all the cases the neuralgia appeared at the onset of the disease and lasted throughout the febrile period.

3. Psychical syndrome, such as mental confusion and melancholia.

Description of a Sign.—Influenza Spondylitis.—Effect on Kidneys.

In a paper on a typical tender spot in influenza, Boeckler[11] draws attention to a sign which, in his experience, is never absent in true influenza, and the absence of which excludes the disease. This tender spot, which is usually bilateral, but may be present on one side only, is found as follows. A horizontal line is drawn two finger-breadths above the highest points of the iliac crests, with the patient in the vertical position. The point where this horizontal line intersects the outer border of the longissimus dorsi is the characteristic influenza tender point, which corresponds, according to Boeckel, to the space between the third and fourth lumbar vertebræ. This sign is often the only objective finding present at the beginning of the disease, and sometimes persists after all the other symptoms have disappeared. Boeckel has never found it present in any other disease, and considers that its constant presence in influenza proves that a more or less marked neuritis is constant in this disease, affecting all the branches of lumbar segment and the fourth most of all. This hypothesis accounts for the pain in the back and legs and also for the giving way of the knees so frequently observed in influenza, as the fourth lumbar nerve sends motor fibres to the inner side of the leg.

A case of influenza spondylitis resembling typhoid spine and giving rise to lordosis is reported by Bregman.[12] X rays

[1] Friedberger: Med. Klin., Berl. u. Wien 1918, xiv., 922.
[2] Hanssen: Deutsche med. Wchnschr., Berl. u. Leipz., 1918, xliv., 1030.
[3] Or iconi, Barbie, et Leclerc: Presse méd., Paris, 1918, 508–9.
[4] Florand, A.: Bull. et Mém. Soc. Méd. des Hôp. de Paris, 1918, 3e Sér., xlii., 753–55.
[5] Lampe, R.: Med. Klin., Berl. u. Wien, 1918, xiv., 858–60.
[6] Espina: Siglo méd., Madrid, 1918, lxv., 704.
[7] Pavesi, C. M.: Policlin., Roma, 1918, xxv., sez. prat., 931–5.
[8] Morelli, G.: Policlin., Roma, 1918, xxv., sez. prat., 926–931.
[9] Häberlin: Med. Klin., Berl. u. Wien, 1918, xiv., 897–8.
[10] Sanz, F.: Siglo méd., Madrid, 1918, lxv., 704–5.
[11] Boeckler: Med. Klin., Berl. u. Wien, 1918, xiv., 860–1.
[12] Bregman, L. E.: Med. Klin., Berl. u. Wien, 1918, xiv., 912–14.

showed considerable widening of the lumbar intervertebral spaces, but no important changes in the bodies of the vertebræ. Recovery took place in three months under treatment by salicyl preparations and electric-light baths.

According to the official report quoted by Knack [13] on the epidemic of influenza in the German Army in 1889–90, among 55,263 cases there were only 10 instances of serious renal disease which did not differ in any respect from that occurring after other infectious diseases. Subsequent experience has confirmed that of the 1889 epidemic, and recent text-books state that post-influenzal nephritis is uncommon. During the present epidemic Knack has found a trace or cloud of albumin almost invariably present in mild and moderate cases of uncomplicated influenza. The albuminuria usually appeared during the first few days of the disease, and disappeared with, or shortly after, the fall of the temperature, but in rare cases it persisted for several weeks. From examination of the urinary sediment Knack has occasionally found focal and diffuse glomerulo-nephritis, and in rare cases nephrotic and purulent renal changes. An outbreak of influenza in the department for war nephritis gave Knack an opportunity of studying the effect of influenza on pre-existing renal disease. In many cases the kidney did not show any reaction, and in others there was a more or less pronounced but transitory exacerbation of the renal condition.

THE MEDICAL RESEARCH COMMITTEE:

COMMITTEES FOR SPECIAL PURPOSES.

IN the fourth annual report, just issued, of the Medical Research Committee (Cd. 8981. Price 4*d*.) an appendix is devoted to the constitution and personnel of the various committees for special purposes which have arisen during the war. We reproduce this appendix for the benefit of our readers.

(1) *The Incidence of Phthisis in Relation to Occupations.*

To investigate and report upon the incidence of phthisis in relation to particular occupations, and to prepare and suggest schemes for special research work in connexion therewith.

Dr. Addison (chairman); Dr. John Brownlee; Professor William Bulloch, F.R.S.; Dr. E. L. Collis; Dr. Major Greenwood; Dr. Leonard Hill, F.R.S.; Dr. Benjamin Moore, F.R.S.; with Sir Walter M. Fletcher, F.R.S. (secretary to the Medical Research Committee).

(2) *Surgical Shock and Allied Conditions.*

To undertake the coördination of inquiries into surgical shock and allied conditions, with a view to the better correlation of laboratory and clinical observations.

Professor W. M. Bayliss, F.R.S. (chairman); Professor F. A. Bainbridge; Professor W. B. Cannon (Harvard); Colonel T. R. Elliott, F.R.S.; Dr. John Fraser; Colonel H. M. W. Gray; Dr. P. P. Laidlaw; Professor A. N. Richards, Ph.D. (Pennsylvania); Professor C. S. Sherrington, F.R.S.; Professor E. H. Starling, F.R.S.; Major-General Cuthbert Wallace; Dr. H. H. Dale, F.R.S. (secretary). (With corresponding members in France, Italy, and America.)

(3) *Standardisation of Pathological Methods.*

To consider how far it may be practicable and desirable to obtain standardisation of routine pathological methods, and to report upon this. The Committee are empowered to coöpt additional members for particular divisions of their subject.

Professor J. G. Adami, F.R.S. (chairman); Professor F. W. Andrewes, F.R.S.; Professor W. Bulloch; Captain S. R. Douglas (secretary). Additional members for particular divisions of the subject: Colonel L. W. Harrison; Dr. C. H. Browning; Dr. J. W. H. Eyre.

(4) *Salvarsan.*

To consider the methods of manufacture, biological testing, and clinical administration of salvarsan and its substitutes used in this country, and the results of these, and to propose specific investigations aimed at improving those methods and results.

Sir Humphry D. Rolleston (chairman); Professor F. W. Andrewes; Professor William Bulloch; Dr. F. J. H. Coutts (secretary); Dr. H. H. Dale; Colonel L. W. Harrison; Surgeon Commander D. W. Hewitt, R.N.

(5) *Chemical Warfare Medical Investigations.*

Appointed by the Director-General, Army Medical Service, with the concurrence of the Controller of Chemical Warfare, to prepare reports, based upon information received from all sources at the Chemical Warfare Department, for submission to him with a view to their distribution to those concerned, to make suggestions for further co-ordinated medical investigations that may seem desirable, and to advise him generally in respect of the scientific medical aspects of chemical warfare.

Professor A. R. Cushny, F.R.S. (chairman); Mr. J. Barcroft, F.R.S.; Professor W. M. Bayliss; Professor A. E. Boycott, F.R.S.; Dr. H. H. Dale; Dr. J. S. Elkins (secretary); Sir Walter M. Fletcher; Dr. J. S. Haldane, F.R.S.; Dr. Leonard Hill; Lieutenant-Colonel J. C. Meakins, C.A.M.C.; Major H. S. Raper, R.A.M.C.; Dr. Frank Shufflebotham; Colonel A. B. Soltau. (With corresponding members in France, Italy, and England.)

[13] Knack, A. V.: Med. Klin., Berl. u. Wien, 1918, xiv., 902–4.

(6) *Anaerobic Bacteria and Infections.*

With a view to the better coördination of inquiries into the characters of anaerobic organisms, with special reference to the bacteriology of anaerobic wound infections, the Medical Research Committee invited the following to serve as a Special Investigation Committee for this purpose.

Professor William Bulloch (chairman); Dr. W. E. Bullock; Captain S. R. Douglas; Dr. Herbert Henry; Dr. James McIntosh; Dr. R. A. O'Brien; Miss Muriel Robertson, M.A. (secretary); Dr. C. G. L. Wolf. (With corresponding members in France.)

(7) *Accessory Food Factors ("Vitamines").*

Appointed by the Medical Research Committee jointly with the Lister Institute of Preventive Medicine to consider and advise upon the best means for advancing and coördinating the various lines of inquiry into the modes of action of the factors in metabolism which are independent of the provision of energy.

Professor F. Gowland Hopkins, F.R.S. (chairman); Miss Harriette Chick, D.Sc. (secretary); Dr. J. C. Drummond; Professor Arthur Harden, F.R.S.; Dr. E. Mellanby. (With corresponding members with the Forces in the East and in America.)

(8) *Air Medical Investigation.*

The Medical Administrative Committee of the Air Ministry in consultation with the Medical Research Committee, and with the concurrence of the Air Council, appointed the following Committee:—(*a*) To prepare reports for submission to them with a view to their distribution to those concerned. (*b*) To make suggestions for further coördinated medical investigations that may seem desirable. (*c*) To advise them generally in respect of the scientific medical aspects of aeronautics.

Dr. Henry Head, F.R.S. (chairman); Sir Walter M. Fletcher; Dr. M. Greenwood; Dr. Leonard Hill; Dr. W. H. R. Rivers, F.R.S.; Professor C. S. Sherrington; Professor C. E. Spearman Ph.D.; Colonel Martin Flack, R.A.F. (secretary); the Secretary, Medical Administrative Committee (ex-officio). Corresponding members in France: Major J. L. Birley; Captain C. H. D. Corbett; Lieutenant-Colonel G. Dreyer; Mr. Sydney Scott.

(9) *Dysentery.*

In May, 1918, the following Committee was appointed by the Director-General, A.M.S., for the purpose of investigating problems in connexion with the incidence and segregation of cases of amœbic and bacillary dysentery, more especially with relation to the disposal of carriers, and such other problems as may be placed before it.

Sir William Leishman, F.R.S. (chairman); Professor F. W. Andrewes; Dr. G. S. Buchanan; Mr. Clifford Dobell, F.R.S.; Sir Walter M. Fletcher; Dr. G. T. Western (secretary).

(10) *Industrial Fatigue Research Board.*

Appointed in June, 1918, by the Department of Scientific and Industrial Research jointly with the Medical Research Committee to consider and investigate the relations of the hours of labour and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers.

Professor C. S. Sherrington (chairman); Dr. E. L. Collis; Sir Walter M. Fletcher; Mr. W. L. Hichens; Mr. Edward Hopkinson, D.Sc.; Dr. M. T. Legge; Mr. D. R. Wilson (secretary). (The appointments to the Board are not yet completed.)

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the Executive Committee of the Fund was held at the offices of THE LANCET on Nov. 18th, when the position of the Fund was considered, having regard to the gradual reclamation of Belgium from the German occupation.

Sir RICKMAN GODLEE, the Chairman of the Committee, said that after inquiry he found that no definite announcement could yet be made as to when prompt intercommunication between the Committee of the Fund and the Comité Mixte sitting in Brussels could be made. The feeling of the Committee was that, with regard to the money remaining in their hands, as well as future subscriptions, some direct communication with the Belgian body would now be useful. It was decided that steps should be taken to obtain through the Commission for Relief in Belgium a statement from the Comité Mixte, representing the medical and pharmaceutical professions in Belgium, as to the present position. The Committee noted with pleasure that the subscriptions to the Second Appeal of the Fund were still coming in, the North of England Branch of the British Medical Association, through Dr. J. Don, the honorary secretary of the Branch, having been notably generous. Relying on two things—namely, the subsidy until the end of the year of £200 a month from the American Red Cross, and the recurring generosity of the medical profession—it was decided to resume the mensuality of £800 per month.

The Committee formally expressed deep regret at the death of Mr. Meredith Townsend, who had been an active and assiduous member of their body, and through whose instrumentality a varied and valuable assortment of medical instruments had been distributed from the Apothecaries'

Hall, London, to Belgian doctors, both in this country and fighting with the Belgian Army.

SUBSCRIPTIONS TO THE SECOND APPEAL.

The following subscriptions have been received up to Monday last, Nov. 18th:—

	£	s.	d.
North of England Branch B.M.A. (per Dr. J. Don, Hon. Sec.)—			
Dr. James Hudson ...	5	5	0
Dr. J. Wishart	1	1	0
Dr. J. H. R. Garson ...	1	1	0
Dr. J. McDonald ...	2	2	0
Dr. T. G. Ainsley ...	5	5	0
Dr. C. Bean	1	1	0
Dr. F. Horseman ...	1	0	0
Dr. James Don... ...	5	5	0
Dr. A. Livingston ...	5	5	0
Dr. A. C. Burnell ...	5	5	0
Dr. Alfred Cox (monthly)	1	1	0
Dr. J. Herbert Sanders (per Sir Rickman Godlee)	1	10	10
Dr. R. H. Western... ...	20	0	0
H. L.	5	0	0
Sydenham District Medical Society (per Dr. F. G. Swayne)	7	7	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

URBAN VITAL STATISTICS.

(Week ended Nov. 16th, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had increased from 11·4 to 43·8 per 1000 in the seven preceding weeks, declined to 38·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 44·0 or 11·5 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 14·8 in Bournemouth, 14·9 in Southampton and in Wallasey, and 15·0 in Portsmouth, to 62·0 in Oldham 68·4 in Coventry, 68·7 in Nottingham, 70·2 in Norwich, and 84·6 in Rotherham. The principal epidemic diseases caused 186 deaths, which corresponded to an annual rate of 0·6 per 1000, and included 61 from infantile diarrhœa, 53 from diphtheria, 31 from whooping-cough, 26 from measles, 9 from scarlet fever, and 6 from enteric fever. The deaths from influenza numbered 5916, or 1644 below those recorded in the previous week, and included 1665 in London, 246 in Birmingham, 241 in Sheffield, 235 in Manchester, 208 in Leeds, 198 in Nottingham, and 161 in West Ham. The 1171 cases of scarlet fever and 1086 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 27 and 69 below the respective numbers remaining at the end of the previous week. The causes of 74 deaths were uncertified, of which 10 were registered in Nottingham, 6 each in Birmingham and South Shields, and 5 each in London, Liverpool, and Gateshead.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 23·9, against 30·5 and 27·0 per 1000 in the two preceding weeks. Of the 1103 deaths from all causes, 46 were classified to influenza, which was also stated as a contributory cause in 331 deaths classified to other diseases; in the previous week these numbers were 87 and 447 respectively. The 404 deaths in Glasgow corresponded to an annual rate of 18·9 per 1000, and included 5 from diphtheria, 3 from whooping-cough, 2 from infantile diarrhœa, and 1 from scarlet fever. The 234 deaths in Edinburgh were equal to a rate of 33·6 per 1000, and included 4 from whooping-cough, 2 each from diphtheria and infantile diarrhœa, and 1 from scarlet fever.

Irish Towns.—The 349 deaths in Dublin corresponded to an annual rate of 45·6, or 14·4 per 1000 below that recorded in the previous week, and included 141 from influenza, 4 from infantile diarrhœa, 3 from diphtheria, 2 from scarlet fever, and 1 each from enteric fever and measles. The 412 deaths in Belfast were equal to a rate of 54·7 per 1000, and included 3 from infantile diarrhœa and 1 each from scarlet fever and diphtheria.

LITERARY INTELLIGENCE.—A work on "Dr. John Fothergill and His Friends," by Dr. R. Hingston Fox, will shortly be issued by Messrs. Macmillan. It will give a picture of the Quaker physician, and his influence on the advance of therapeutics in the eighteenth century. The book will deal with Fothergill's large contributions to botany, his work in education and politics, and especially his relations with the American provinces. Portraits of Fothergill, Dimsdale, Lettsom, Franklin, and others are included.

COAL FOR INVALIDS.—It has been reported to the Coal Controller that local fuel overseers are receiving very many medical certificates authorising additional coal rations to householders on account of illness in the family. Many of these medical certificates have been given, in the opinion of the Coal Controller, without the necessary consideration of the serious coal shortage, and with this view he is drawing the attention of medical men to the necessity of granting these certificates only in cases of real hardship. The only condition under which a medical certificate for an extra coal ration on account of illness should be given is, says the Coal Controller, where the patient is to remain in bed and where a fire in the bedroom is necessary for recovery; and he states that "one cwt. to one and a half cwt. a week can be allowed for bedroom fires in these circumstances and only for the time the patient remains in bed." The notice to medical men is accompanied by an unfortunately worded threat of ignoring medical certificates unless the real hardship of the case is clear to his department.

The War and After.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue:—

Died of Wounds.

Capt. J. Gaston, M.C., R.A.M.C., attached Suffolk Regiment, qualified at Belfast in 1906, and prior to joining the R.A.M.C. was in practice at Cloughmills, co. Antrim. The award of the Military Cross was recorded in THE LANCET of August 4th, 1917, p. 175.

Lieut. P. R. Shannon, R.A.M.C., came over as a member of the Canadian Expeditionary Force, and later was attached to the R.A.M.C.

Died.

Capt. R. S. Cocke, R.A.M.C., was a student at King's College Hospital, London, and qualified in 1900. He held appointments at the Cambridge Hospital, Aldershot, at King's College Hospital, and at St. Pancras Infirmary. Prior to joining the R.A.M.C. he was in practice in Wimpole-street, and was on the staff of the Royal Ear Hospital, Soho, and of King's College Hospital. He died in London of disease, contracted whilst on active service in the East.

Capt. L. A. Winter, R.A.M.C., was a student at St. Bartholomew's Hospital, London, and qualified in 1892. He held appointments at the East London Hospital for Children, at the Kent and Canterbury Hospital, and at St. Bartholomew's Hospital. Prior to joining the R.A.M.C. he was in practice at Sheerness, where he was medical officer to the Post Office, divisional surgeon to the St. John Ambulance Brigade, acting commandant and medical officer to the local V.A.D., and civil surgeon to the Well Marsh Military Hospital, Sheerness. He died in France of pneumonia.

Capt. H. G. F. Spurrell, R.A.M.C., was educated at Oxford and at the London Hospital, and qualified in 1907. During 1916-17 he was temporary medical officer at Obuasi, South Ashanti, and later joined the R.A.M.C. He died at Alexandria of pneumonia.

Col. S. C. Philson, A.D.M.S., R.A.M.C., was a student at King's College Hospital, London, and qualified in 1883. He joined the R.A.M.C. shortly afterwards.

Capt. A. M. Jukes, I.M.S., was a student at St. Bartholomew's Hospital, London, and qualified in 1906. Prior to joining the I.M.S., in which at the time of his death he was Deputy Sanitary Commissioner of the Presidency Circle, Bengal, he held appointments at Shillong, Assam, and at the Royal Infirmary, Hull. He died in Egypt of neuritis and heart failure following rheumatic fever.

Lieut. J. Dow, I.M.S., qualified at Aberdeen in 1914, and after holding an appointment at the Aberdeen Royal Infirmary he joined the R.A.M.C., and later transferred to the I.M.S.

Capt. J. M. Downie, R.A.M.C., was educated at Cambridge and at Glasgow Universities, and qualified in 1916. After holding an appointment at the Western Infirmary, Glasgow, he joined the R.A.M.C.

Lieut.-Col. J. E. Hodgson, R.A.M.C., was a student at Owens College, Manchester, and qualified in 1898. He held an appointment at Barnes Convalescent Hospital, Cheadle, and joined the R.A.M.C. in 1899. He died at Salonika of pneumonia following influenza.

Capt. C. D. Hamilton, Canadian A.M.C., qualified at McGill University, Montreal, in 1911, and prior to joining the Canadian Contingent was in practice in Cornwall, Ontario, Canada.

Lieut. W. McL. McLeod, Canadian A.M.C.

Lieut. R. H. Lalande, Canadian A.M.C.

Wounded.

Capt. A. Hunter, R.A.M.C., attached Royal Engineers.
Capt. A. U. Millar, R.A.M.C.
Capt. P. G. Leeman, R.A.M.C.
Capt. J. Manuel, M.C., R.A.M.C.
Major W. H. Morrison, R.A.M.C.
Capt. C. H. G. Prance, R.A.M.C.
Capt. I. W. Jones, R.A.M.C., attached Indian Army.
Capt. R. Rodger, R.A.M.C., attached Indian Army.
Major D. H. Russell, M.C., R.A.M.C., att. Northumberland Fusiliers.
apt. C. N. Coad, M.C., R.A.M.C.
Capt. J. Pryce Davies, R.A.M.C., attached R.F.A.
Capt. J. Scott, R.A.M.C., attached Manchester Regiment.
Major H. J. D. Smythe, R.A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. J. E. C. MacVicker, R.A.F., reported missing, now believed to have been killed, eldest son of Dr. C. G. MacVicker, J.P., of Street, Somerset.

Capt. E. V. Morse, M.C., The Buffs, killed in action, second son of Mr. T. H. Morse, F.R.C.S., of Deal.

Lieut. J. Webster, M.C., R.A.F., killed in action, only son of Dr. J. A. Webster, late of Launceston and Sorell, Tasmania.

Capt. J. C. Woollett, R.A.F., died of pneumonia, son of Dr. C. J. Woollett, of Streatham, London, S.W.

Second Lieut. J. W. B. Rowland, R.F.A., killed in action, only son of Dr. E. D. Rowland, I.S.O., British West Indies Medical Service.

Col. S. C. Philson, A.D.M.S., R.A.M.C., died of pneumonia at Karachi, India, son of the late Dr. W. Philson, of Cheltenham.

Capt. A. M. Jukes, I.M.S., died of heart failure after rheumatic fever, only son of Dr. A. Jukes, of the Church Missionary Society.

Lieut. E. L. Prichard-Evans, R.A., died at King's Lynn of pneumonia, youngest son of the late Dr. E. Prichard-Evans, of Mountain Ash, Glam.

Capt. H. S. Lyle, M.C., Canadian Mounted Rifles, killed in action, third son of the late Dr. R. C. Lyle, of Dunmow, Essex.

Gunner C. G. Kelly, R.F.A., killed in action, son of the late Dr. B. Kelly, of Rotherhithe, London, S.E.

Driver W. Marshall, R.H.A., died abroad of influenza, son of Dr. J. Marshall, of Wickford, Essex.

THE HONOURS LIST.

The following appointments of medical officers to the Order of the British Empire are announced:—

Officers: Capt. D. H. Fraser, M.C., R.A.M.C. (for an act of gallantry not in the presence of the enemy); Temp. Capt. D. F. Borrie, R.A.M.C.; Maj. S. R. Christophers, C.I.E., I.M.S.; Capt. W. Dunlop, R.A.M.C. (Spec. Res.); Temp. Capt. E. N. Glover, R.A.M.C.; Maj. F. P. Mackie, I.M.S.; Temp. Lieut.-Col. D. Macaulay, R.A.M.C.; Capt. (acting Maj.) W. D. Miller, South African M.C.; Lieut.-Col. E. R. Rost, I.M.S.; Maj. E. L. Scott, M.C., I.M.S.; Maj. C. E. Southon, I.M.S.; Capt. R. Bury, Nyasaland M.S.; Temp. Capt. G. D. H. Carpenter, Uganda M.S.; Capt. W. H. Elliott, R.A.M.C. (Spec. Res.); Capt. G. B. Fleming, R.A.M.C. (T.F.); Capt. W. H. Kauntz, East African M.S.; Temp. Capt. D. McIntyre, R.A.M.C.; Maj. E. Gibbon, R.A.M.C.; Mr. A. H. Spurrier, C.M.G., L.R.C.P., attached Sanitary Service, East African Force.

FOREIGN DECORATIONS.

French.

Légion d'Honneur: Croix de Chevalier.—Lt.-Col. J. H. Hugo, D.S.O., I.M.S.

Croix de Guerre.—Maj. C. E. W. S. Fawcett, R.A.M.C.; Lt.-Col. P. G. Brown, Canadian A.M.C.; Lt.-Col. R. D. Campbell, D.S.O., Australian A.M.C.; Maj. (Temp. Lt.-Col.) R. T. Collins, D.S.O., R.A.M.C.; Capt. W. P. Croker, R.A.M.C.; Capt. (Acting Maj.) J. Dale, R.A.M.C.; Temp. Capt. J. L. Jackson, R.A.M.C.; Lt.-Col. A. B. Lyon, R.A.M.C.; Lt.-Col. A. H. Marks, D.S.O., Australian A.M.C.; Capt. (Acting Maj.) G. S. Parkinson, D.S.O., R.A.M.C.; Capt. (Temp. Col.) S. M. Smith, C.B., R.A.M.C. and A.M.S.; Lt.-Col. (Temp. Col.) A. B. Soltau, C.M.G., R.A.M.C. and A.M.S.; Maj. (Temp. Lt.-Col.) V. O. Stacy, Australian A.M.C.; Maj. (Acting Lt.-Col.) C. G. Thomson, D.S.O., R.A.M.C.; Lt.-Col. J. Tonin, R.A.M.C.; Capt. (Acting Lt.-Col.) T. B. Wolstenholme, R.A.M.C.; Capt. W. L. R. Wood, M.C., R.A.M.C.; Col. R. J. Blackham, C.M.G., C.I.E., D.S.O., A.M.S.; Temp. Lt. (Acting Maj.) H. Goodman, R.A.M.C.; Temp. Capt. (Acting Maj.) H. B. G. Russell, R.A.M.C.; Senior Asst. Surg. E. V. Duckworth, I.S.M.D.

RELEASED MEDICAL OFFICERS.

The following medical officers have been released from captivity in Turkey:—

R.A.M.C.—Lieut.-Col. E. Bennett, Capt. J. S. Startin, Capt. T. E. Osmond, Capt. E. G. S. Cane.

I.M.S.—Lieut.-Col. R. E. Baines, Maj. S. G. S. Haughton, Maj. W. M. Pearson, Capt. C. Newcomb, Capt. M. L. Puri, Capt. L. A. P. Anderson.

FIRST BRITISH AMBULANCE UNIT FOR ITALY.—The value of the unit's work, which is to terminate at the end of the year, has been publicly recognised by the Italian Red Cross in the award of three *Croce Rossa* silver medals with certificates, one of them to Dr. George S. Brock, who was for a long time in medical charge of the Villa Trento Hospital, at Gorizia. The unit, after many stirring episodes, lays down its work in the now Italian seaport of Trieste.

OBITUARY OF THE WAR.

ROGER DAWSON BROWNSON, B.A., M.B., B.C. CAMB.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain R. D. Brownson, who died at Peshawar on Oct. 21st, was only son of the Rev. F. Brownson, of Compton Greenfield, Gloucestershire. He was educated at Warwick and St. John's College, Cambridge, going on to the London Hospital. He took the Conjoint diplomas in 1908 and the M.B., B.C. Camb. in 1911. For two years he practised at Hampstead, and on the outbreak of war he volunteered for active service and received a commission in the R.A.M.C. In February, 1915, he was sent out to France, where he was attached to the 1st Norfolks, and while with them he was gassed. After recovery he was given home service with an R.E. Bridging Train at Plymouth. In January, 1916, he was sent to India, attached to the King's Own at Peshawar, where he soon became Staff Surgeon, an appointment which he held until his death, which was the result of influenza. Captain Brownson was a keen sportsman and a regular follower of hounds at Peshawar. He married in 1911 the Hon. Gwenllian Rice, third daughter of the late Lord Dynevor, and leaves a widow and one daughter 3 years old.

FRANK PEARCE POCOCK, M.R.C.S. ENG.,

DISTINGUISHED SERVICE ORDER, MILITARY CROSS,
TEMPORARY SURGEON, R.N.

Surgeon F. P. Pocock, who died of wounds on Sept. 29th, at the age of 27 years, was younger surviving son of Charles Wellesley Pocock, of Portishead. He was born at Harrow and educated at Durston House, Ealing, Ripley Court, Surrey, and St. Paul's School, where he gained an open scholarship to Westminster Hospital. He qualified M.R.C.S. Eng. in 1913 and then held the post of house surgeon at his hospital. On the outbreak of war he offered his services to the Navy, and for the first 14 months was posted to a battleship on the North Sea. He was then transferred to the Royal Naval Division and saw service in the Eastern Mediterranean and afterwards in France as M.O. to the Drake Battalion. In the autumn of 1916 he was awarded the M.C. He was invalided home in November, 1917. He served with the Royal Marines as surgeon on *Iris II.* in the Zeebrugge raid of April last, and for his services on this occasion was awarded the D.S.O. He returned to the Drake Battalion in August as M.O., and was mortally wounded himself as he was going to the assistance of a wounded man. Letters from his friends indicate the affection and esteem in which Surgeon Pocock was held. An old college friend writes: "He was one of the most popular and best-loved men who have been through the hospital for many years."

GEOFFREY ALWYN GERSHOM BONSER, B.A. CAMB., M.R.C.S. ENG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain G. A. G. Bonser, who was killed in action in France on Sept. 29th at the age of 30 years, was only son of G. G. Bonser, J.P., of Sutton-in-Ashfield. Educated at Brighton College and Worcester King's School, he entered St. John's College, Cambridge, taking honours in the Science Tripos, and going on to St. Thomas's Hospital, London, for his clinical work. His tastes were literary and poetical, with a passionate love of music, and while at St. Thomas's he edited the hospital gazette. After obtaining the diplomas of the Conjoint Board he joined the Territorials in 1915 while preparing for the Third M.B. Examination at Cambridge, and was attached to the Eastern General Hospital, assisting the staff at Addenbrooke's Hospital until he sailed for Egypt on Easter Day, 1916. There he served on both fronts, going through many hardships in the Palestine campaign and spending Christmas in Jerusalem. Last May he was transferred to France, and coming home on leave for the first time in July he was married to Miss Lilian Prime, to whom he had long been engaged. Two months after his return to France he was killed instantaneously by a shell while attending wounded. A letter from his colonel contains the sentence: "Captain Bonser's death is a great loss to the battalion; from all who knew him well I have heard nothing but praise." The utmost sympathy will be extended to his young widow.

KENNETH McALPIN ROSS, M.B., CH.B. GLASG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain K. McA. Ross, who died of wounds on Sept. 17th at the age of 26 years, was second son of the late Dr. William Ross, of Glasgow, and was educated at Bellahouston Academy, where he was a prominent swimmer and footballer. He graduated M.B., Ch.B. at Glasgow University in 1915, immediately obtaining a commission in the R.A.M.C. He went out to France in the following year as medical officer to a battalion of Lancashire Fusiliers, and was invalided home in 1917. In the present year he volunteered again for service, and in July was attached to a Scottish regiment, with which he received a fatal wound at Moevres. He leaves a widow and a wide circle of friends to lament his loss.

Captain JAMES GRANT MACNEILL, *M.C.*, C.A.M.C., who was killed in action on Oct. 12th, was 25 years of age and a native of St. Stephen, N.B., Canada. He graduated in medicine at Queen's University in 1916 and left Canada in May of that year. Crossing to France in August, 1916, he served with a field ambulance and as regimental M.O. He was awarded the Military Cross last July.

GEORGE FINCH, M.R.C.S. ENG., D.P.H. OXF.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain G. Finch, who died at Basra on Oct. 8th, aged nearly 46 years, was only son of the late George Finch, of Kensington. He was educated at Bedford Grammar School and at Weimar, studied engineering at University College, London, and afterwards was engaged on the construction of the Central London Tube Railway. An illness turned his thoughts towards medicine, and he began a medical course at Leeds University, finishing it at St. Thomas's Hospital, London, from which he took the Conjoint diplomas in 1905. Five years later he obtained the D.P.H. Oxford. After a series of resident hospital appointments in London he was appointed in 1911 school medical officer for the East Sussex County Council. When war broke out he was assistant to the county medical officer of health for East Suffolk and resided at Ipswich. He immediately volunteered and received his commission in the R.A.M.C. before the end of the first week of the war, and was attached to the 3rd East Anglian (Howitzer) Brigade of the R.F.A. (T.F.). Later he was transferred to the military side of St. Thomas's Hospital, and thence to the 3rd London General Hospital, Wandsworth. In July, 1916, he was one of the hospital unit chosen for Mesopotamia by Colonel Bruce-Porter. Shortly after arriving at Basra he was appointed port health officer there, and held this appointment until his death from pleuro-pneumonia in the officers' hospital.

Captain Finch's heart was in his public health work, evidence of which may be seen in his contributions on school inspection and on the feeding of infants and children in the *Child* and in our own columns. He leaves a widow, the second daughter of Professor G. Carey Foster, F.R.S., and a daughter 2 years old.

GIDEON HENDRIK VAN ZYL, L.R.C.P. EDIN.,

LIEUTENANT-COLONEL, SOUTH AFRICAN MEDICAL CORPS.

Dr. G. H. van Zyl, who died of pneumonia at Wynberg in his forty-second year, was son of the late William van Zyl. He was educated at Robertson and Wellington High Schools and at Edinburgh, where he took his medical diplomas before returning to South Africa, where he started in practice at Zand Vliet, in the district of Robertson, in September, 1905. Dr. van Zyl was a diligent citizen of Robertson; he was on the executive of the local agricultural society and a member of the Turf Club and Masonic Lodge. He married in June, 1905, Frances, daughter of the late Edward Allsopp, by whom he had two children.

Captain THOMAS REGINALD GUILFOYLE, C.A.M.C., who died on Oct. 29th, at the age of 26 years, was a native of Lucan, Ontario. He graduated in medicine at the Western University, London, Ontario, in 1914, and came to England in July, 1916, serving with a stationary and a general hospital in England until last February, when he was invalided back to Canada. He returned again to duty in England in July, serving as S.M.O.

Correspondence.

"Audi alteram partem."

THE MEDICAL SERVICE OF THE ROYAL AIR FORCE.

To the Editor of THE LANCET.

SIR,—With reference to the annotation under the above heading in your issue of Nov. 16th, it may be pointed out that as the period of compulsory service for medical men in the armed forces is now drawing to a close it will be necessary to obtain some definite statement as to the above service if medical men of ability are to remain in it or be attracted to it. A scheme for this service drawn up by the Medical Advisory Committee of the Flying Services still holds the field, although it has not yet been called on for active duty while the "duration of the war" compromise known as the Medical Administrative Committee has ceased to exist.

It should be made widely known that the scheme of the Medical Advisory Committee was designed *pro bono publico* and not *pro bono medico*. At the same time, it was kept in mind that an efficient medical service for the Air Force could only be carried on by efficient medical men. So far the principles of the scheme have met with general approval, but the only application of them has been as a soothing syrup for anxious inquirers in the House of Commons. Nine months ago Major Baird, Under-Secretary of State for the Air Ministry, expressed the hope that the newly appointed Medical Administrative Committee would be able to carry out the principles of the scheme. A fortnight ago he expressed the hope that the newly appointed Director-General would be guided by the principles of the scheme. Major Baird's hopefulness is no doubt useful in Parliament but does not help members of the medical profession desirous of joining the Air Force, and they will be well advised to wait until it is known whether the Air Board have definitely adopted and guaranteed the principles of the scheme.

An important recommendation in the scheme was the appointment of a Medical Advisory Committee, meeting once a month, to aid the Director-General. It was to consist of the Director-General, his chief medical officers, and a strong civilian element. Although the functions of this committee were to be advisory only its influence in securing a high standard of professional work promised to be very great. The presence of experts on medical subjects drawn from the civilian population would undoubtedly strengthen the hands of the Director-General in maintaining an up-to-date medical service.

I am, Sir, yours faithfully,

Wimpole-street, W., Nov. 17th, 1918. G. A. SUTHERLAND.

MEDICAL DEMOBILISATION.

To the Editor of THE LANCET.

SIR,—Referring to the letters in your issue of Nov. 9th on the subject of damaged and lost practices, it is beyond question that many men have lost everything by joining the Service early in the war, relying on their "indispensable" neighbours to look after their practices in their absence. Demobilisation of the Army abroad will take many months Let me make the following suggestion: Now that all danger from shell fire or gunshot is past, let the "indispensables" be mobilised to release those who have served long to return to their practices and undertake the reconstruction of their own and the looking after of the former "indispensables'" practice in the same manner as they have been "done" by.

I am, Sir, yours faithfully,

Pembroke, Nov. 12th, 1918. A. HURRELL STYLE.

To the Editor of THE LANCET.

SIR,—I noticed your article of recent date which dealt with the demobilisation of the medical services. I gathered that the principle to be adopted was to demobilise those who have had the longest service, and those who joined the services last were to be retained until the last. I agree that in many ways this is a good method to adopt, but I cannot accept it as by any means the fairest and most just.

I would point out most emphatically that there are a large number of medical officers in the R.A.M.C. who have done long service at the base and on lines of communication in comfort and ease. These medical officers have had all the advantages of hospital appointments and have been able to retain their medical and surgical knowledge, and, most important, have kept their methods up to date. On the other hand, there are a very large number of medical officers who have spent the greater part if not the whole of their service in the front areas with field ambulances and regiments. These medical officers (in contrast to their more fortunate brothers at the base, &c.) have had all the discomfort of the front line and dangers of the battlefields. Above all, they have been entirely cut off from the medical world, and have most naturally lost much of their former knowledge, as the medical work in the front areas consists almost entirely of first aid and evacuation of wounded and the treatment of slight sickness.

I think without a doubt that no one could disagree that these latter medical officers with front-line services to their credit should be demobilised before those with base-work service. In writing to you I am voicing the opinion of many others, and I feel sure that those responsible will fully consider this aspect with every care.

I am, Sir, yours faithfully,

France, Nov. 18th, 1918. LONDON.

To the Editor of THE LANCET.

SIR,—All temporary and Territorial officers of the R.A.M.C. who have been serving abroad will surely endorse the view put forward by "Lieut.-Colonel, R.A.M.C. (T.F.)" in the letter which appears in your issue of Nov. 9th. Eminent consultants, who will have an assured position under any conditions of State service, are surely not the best advisers as to what form such a scheme should take Those who have left their practices to serve should be assured of a good billet when peace is signed. Even in that case they would lose the capital value of their practices, whilst those medical officers who have been able—as many officers of the T.F. have—to attend to their practices whilst performing their military duties are not under the same disadvantages.

Some steps should certainly be taken to recompense medical officers who have been compelled to leave their practices, through their own patriotism, for the unenviable position in which they will find themselves after the war, and under any scheme of State service they should have preferential treatment.

I am, Sir, yours faithfully,

Nov. 12th, 1918. TEMP. CAPT., R.A.M.C.

THE ETIOLOGY OF INFLUENZA.

To the Editor of THE LANCET.

SIR,—For some time previous to the appearance of the epidemic in Reading I have had occasion to examine many sputa from men who had been "gassed" in France. These sputa were generally submitted to culture, and in the course of this work it became evident that one particular type of organism was occurring with almost mechanical frequency. Since the epidemic broke out in this neighbourhood I have recovered apparently the same organism in pure culture from the blood of a patient with practically no physical signs in the chest, from the pleural fluid of another case, and I have isolated it from a throat swab culture as well as from sputa from civilian cases.

One case, however, which came under my notice seems to me to possess a special interest. The patient was said to have had an attack of influenzal broncho-pneumonia on the way across from America. While convalescing near Reading he suddenly developed a temperature and was admitted under the care of my colleague, Major G. S. Abram, R.A.M.C. (T). The patient had enlarged glands in both groins and in the left axilla without any obvious local irritation to account for them. The possibility that it might be a case of plague presented itself, and I was asked by my colleague to make a bacteriological investigation. From one of the glands I extracted a few drops of blood-stained fluid with which I inoculated two guinea-pigs intraperitoneally. The animals remained fairly well for a week, but were found dying on the eighth day. One of them had apparently been passing blood, as its hind parts were blood-stained. On making a post-mortem examination I found the peritoneal cavity of each

animal to contain a large quantity of blood-stained fluid. Cultures made from these animals have yielded a pure growth of an organism apparently identical with that found in influenzal and in "gassed" cases. There was no evidence of true plague.

In another case, as the sputum contained pestis-like organisms, I again inoculated guinea-pigs. One of them was found dead in 48 hours with acute general peritonitis. Cultures made from the heart blood and from the peritoneal fluid yielded a pure growth of the organism under discussion. Films made from the peritoneal fluid, however, showed enormous numbers of Gram-positive diplococci, apparently capsulated and resembling pneumococci. They differed however, in being larger, less pointed, and more of an ovoid shape.

The organism has the following characteristics:—

It grows well on agar containing sheep's washed blood corpuscles and in blood-glucose broth. On the former the colonies are round, slightly dome-shaped, translucent, and possess a sharply defined outline. They are very minute, and a hand lens may be necessary to enable them to be examined. Where they are less closely sown the colonies are larger and distinctly flat, and show considerable variation in appearance. Some possess a central depression of varying size, others present an even surface, while still others show a central eminence. Broth is rendered turbid and contains very tiny flocculi, which do not altogether disappear on shaking.

In films made from blood agar or from blood broth the organism shows considerable diversity of form. Very long chains predominate. These are composed of diplococci, ovoid rather than lanceolate-shaped. In the course of a chain may be seen other coccal elements, reminiscent rather of a large size of catarrhalis than of pneumococci. Isolated diplococci of both types are numerous and possess an apparent capsule. Involution forms are common—e.g., giant cocci, balloon-shaped forms, and even bacillary types. The latter, however, can frequently be seen to be actually made up of coccal elements which have remained united. Young cultures and cultures made on blood media stain very intensely with Gram's stain, but in certain media they rapidly lose this power, passing through an intermediate stage in which Gram-positive and Gram-negative elements exist side by side and even in the course of the same chain, and finally become for the most part frankly Gram-negative. In the latter stage forms can be seen which bear a distinct resemblance to the bacillus of plague. This is interesting when we remember that pestis-like forms may be seen in sputum films. The Gram-negative elements soon become mis-shapen, stain feebly with the counter-stain, and appear to be in process of dissolution. What determines these rapid changes I have not yet decided, nor have I worked out all the cultural characters. The organism does not appear to be a typical pneumococcus nor yet a typical streptococcus, although it resembles each in certain particulars. Its behaviour in culture gives one the impression of its being highly unstable owing to the rapid changes in its morphology and staining power. This may account for the fact that it is difficult to find the organism in stained films made from sputa, as it does not exist there, as a rule, in the typical form met with in cultures, but, having once studied the forms in laboratory culture, it is not difficult to recognise fairly accurately when the organism is present. This can only be accurately determined, however, by culture.

The fact that this organism has been got from the sputum of practically every case examined here as well as from the blood, &c., and in the absence of any other organism common to all, renders this organism worthy of being regarded as the possible etiological factor. A study of its somewhat erratic morphological changes, &c., furnishes a reason why it has not received more attention, especially as in many instances the sputa are merely examined microscopically, and without an idea of its cultural characters it might be difficult to trace a definite bacterial connexion between various sputa. In view of the tendency to hæmoptyses and to epistaxis, characteristic of many cases in this epidemic, the post-mortem findings in the case of the guinea-pigs inoculated with gland juice seem somewhat significant. Mixed sensitised vaccines containing amongst other things some of this particular organism have been used in treatment with good results in several cases. It now remains to be seen if a sensitised vaccine made from this organism alone will influence cases of the so-called influenza where no apparent respiratory trouble exists.

The work is only fragmentary at present, but enough has been done to justify to some extent the claim to consideration which I make on behalf of this particular organism, which for the time being we may call a pneumo-streptococcus. In view of the urgency of the occasion I feel that others who are working on the problem of the epidemic may have the opportunity to corroborate or otherwise my findings. Pfeiffer's bacillus I have generally found to be absent, and if the causal factor were a filter-passer, while the secondary complications were due to streptococci or pneumococci, why should one particular type of organism having the characters I have already mentioned be so invariably present?

I am, Sir, yours faithfully,

ROBERT DONALDSON,
Reading, Nov. 12th, 1918. Pathologist, Royal Berkshire Hospital.

VARIETIES IN INFLUENZA.

To the Editor of THE LANCET.

SIR,—May I call attention to a few facts which, taken together, appear significant?

(1) The present pandemic of influenza is characterised especially by pulmonary symptoms.

(2) Pandemics of a malady clinically very similar have occurred at intervals of about a generation for many hundreds of years. There was one in 1890, and another in 1847.

(3) If my memory serves me right, this type of influenza lingered in rapidly diminishing epidemics for a very few years after 1890. It was subsequently replaced by annual, very minor, and clinically very different epidemics, in some of which the pharynx and nose were especially affected. Early in the summer of the present year an epidemic occurred among troops in my charge. Hundreds of men were affected, but none showed any symptoms beyond the ordinary accompaniments of pyrexia (rigors, headaches, and the like). All recovered within a week.

(4) The 1890 pandemic differed strikingly from the present one in that, while in 1890 people of all ages were equally attacked and elderly people perished in great numbers, in the present epidemic elderly people have very generally escaped.

If the foregoing is correct it seems probable (*a*) that under the term "influenza" are grouped not several types of the same disease, but several distinct diseases; and (*b*) that one attack of that disease which has occurred in great pandemics (and which is that described in the text-books as "influenza") confers on the individual an immunity which is usually permanent. I do not know how else can be explained the very unlike clinical manifestations of the minor epidemics, or the fact that in the present pandemic, which is separated from its predecessor by 28 years, elderly people have been very generally spared, whereas in the 1890 pandemic, which was separated from its predecessor by 43 years, elderly people suffered severely.—I am, Sir, yours faithfully.

Southsea, Nov. 17th, 1918. G. ARCHDALL REID.

THE APOPLECTIFORM VARIETY OF EPIDEMIC ENCEPHALITIS.

To the Editor of THE LANCET.

SIR,—One clinical variety of epidemic encephalitis, although mentioned by some of the speakers in the discussion at the Royal Society of Medicine, appears hardly to have received the attention which it deserves. The "new syndrome," in which lethargy or stupor and plastic tonicity of the muscles are combined with palsy of the ocular, facial, or other cranial nerves, is sufficiently well known to ensure its recognition. When the disease appears in other guise its true nature is apt to be overlooked; this is particularly the case with what may be designated the apoplectiform variety. In this—sometimes after such prodromal symptoms as slight headache or malaise, sometimes after a premonitory seizure which in minor degree resembles the one which succeeds it, sometimes without any warning at all—the patient, suddenly stricken down with agonising pain in the head, becomes collapsed and unconscious. The seizure may be accompanied by vomiting, twitchings of the limbs, or epileptiform convulsions, but this is not always the case. Unconsciousness lasts a variable period, but is not necessarily prolonged. On recovery, patients have likened their pain to a sudden blow with a stick on the occipital region or inside the head. After subsidence of the acute symptoms of onset an extensor response may often be obtained from one or both soles, the abdominal reflexes may be absent, and the pupils sluggish, sometimes unequal. Definite paralysis of the limbs and face may occur. Curious disturbances of the pulse and respiration may be present in the earlier stages, the breathing being alarming in its infrequency and accompanied by yawning, or definitely of the Cheyne-Stokes type. The pulse may be slow or rapid or irregular, with numerous extra-systoles. The blood pressure may show such wide variations within a few moments that its determination is impossible. Forced attitudes are noticeable in some, the head being forcibly deviated towards one or other shoulder and kept in this position. Rushing noises in the ears, vertigo, apparent movement of external objects, and dimness of vision may one or all be present, but apparently subside very soon. Incontinence of fæces and urine has been observed. Fever is often present and transient albuminuria, sometimes in marked

degree. The fluid obtained by lumbar puncture shows no undue pressure, but traces of blood are too constantly present to be accidental. Sometimes there is a lymphocytosis in addition. In favourable cases recovery may occur very rapidly, so that the patient is about again in a few weeks.

The symptoms of onset clearly suggest cerebral hæmorrhage, and post-mortem examinations show that, in some instances at all events, this has occurred. When we bear in mind the frequency with which hæmorrhagic foci are combined with the perivascular lymphocytic infiltration of epidemic encephalitis, the occurrence of vascular symptoms is not surprising. Some of the specimens examined suggest that the gross lesion may at times be rather of the nature of a hæmorrhagic infarction than a true extravasation, and it is conceivable that the perivascular exudation might itself lead to vascular strangulation or thrombosis The hæmorrhagic foci in the fatal cases appear to originate in the grey matter, and have been found, sometimes in the cerebral cortex, sometimes in the vicinity of the basal ganglia, sometimes in the brain stem, and occasionally in the cortex or dentate nucleus of the cerebellum. These cases are likely to be confused with cerebral hæmorrhage of the ordinary type, but are mostly distinguished from this by the age incidence and by the absence of any signs of cardio-vascular degeneration or of chronic renal disease. The cerebral hæmorrhage of ulcerative endocarditis and of hæmorrhagic blood conditions may be excluded by the absence of the physical signs of these diseases. Moreover, the epidemic cases tend to occur when encephalitis of other types is prevalent, and show in many instances a decided tendency to spontaneous recovery.

I am, Sir, yours faithfully,

Devonshire-place, W., Nov. 16th, 1918. CHARLES R. BOX.

EXAMINATIONS FOR AMŒBIC DYSENTERY INFECTIONS.

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 16th, which has recently come to hand, there appears a letter by Mr. Clifford Dobell criticising some observations of mine on the results of an investigation on *Entamœba histolytica* infections among British troops in India and Mesopotamia, a full report of which had appeared in the *Indian Journal of Medical Research*, 1917, vol. v., p. 239, and a précis of which had been published by you in your issue of Jan. 5th last. Mr. Dobell's criticism is almost wholly directed to the deductions I have drawn from the figures of his statistical essay published by the Medical Research Committee,[1] as applied to the results of our inquiry conducted on troops of the Mesopotamian Field Force. Nothing was further from my intention than any misinterpretation of his figures, and I feel indebted to Mr. Dobell for having taken the time and trouble to point out what he conceives to be their misuse and their application under conditions which, in his opinion, no longer render them admissible.

The main point at issue turns on the fact that while Mr. Dobell's figures are confined to the question of how many protozoological examinations are required to discover all cases of infection, my remarks were directed to the number of examinations required to detect merely cases of *heavy* infection. The curve showing the rapid decline in the percentage of positive findings obtained after three examinations per case, to which Mr. Dobell takes exception as completely misinterpreting his figures, appears, however, to obtain his explicit approval where he says; "When only some three examinations per case are made, those cases which pass cysts regularly are detected and those which are frequently negative, are overlooked" (p. 40[1]). And this to my mind is the only question of practical importance when dealing with a body of men among whom small or intermittent infections were found to be so common in the detection and segregation of the *gross* carriers.

No one will differ from Mr. Dobell when he says that it is impossible to state precisely, as a result of examining only single samples from a series of cases, what the real incidence of infection is, and my use of the term "Dobell's figures for correction" doubtless tends to clothe the figures with a mathematical accuracy which is unwarranted. However, Mr. Dobell, by very careful deduction and analogy, had come to the conclusion: "The chances against detecting the infection by any one examination of the *average* infected case are nearer 2:1 than 3:2" (p. 42). I felt myself justified in making use of his lower figure in calculating that in a series of cases in which 13·6 per cent. of infections were detected by one examination, the true incidence of infection was approximately 34 per cent. It has to be remembered that those examinations and the deductions therefrom were made at a time when none of the papers on the carrier question as it affects the tropics had been published, and an official request had been made to me for an opinion on the disposal of such cases. The positive findings obtained on the single examination method were so numerous that more frequent examinations per case of the non-dysentery patients were not required to prove how general *histolytica* infection was among the men being invalided from Mesopotamia for other than intestinal diseases, and how futile it was to attempt to deal with any but the gross type of carrier.

Although the factors to be considered in regard to the clearing of *histolytica* infection in England may be somewhat different from the conditions of the tropics, Mr. Dobell will no doubt agree with me as to the marked effects of diet and conditions of life in leading to a return of intestinal irritation and to the possible reappearance of cysts in the stools. Hence the importance of "clearing" patients when living under other than hospital conditions. It was to direct attention to such details that a considerable portion of my criticism was intended, because, as I think my results conclusively prove, the conditions of life under which potential carriers are living at the time of examination appear to be of greater importance than the actual number of examinations carried out.

I am, Sir, yours faithfully,

On Service in the Far East, May 26th, 1918. WM. MACADAM, Captain, R.A.M.C.

[1] Medical Research Committee, Special Report Series No. 4, 1917.

THE SEXUAL COMPLEMENT.

To the Editor of THE LANCET.

SIR,—Your leading article on the sexual complement which appeared in THE LANCET of Nov. 16th raises many questions of great biological and clinical interest. As you have stated, the profound mental and physical modifications which in many women follow quickly upon marriage are matters of common observation. They are attributable to the altered life attendant on the married state, which involves change of action and environment each moment of the day from one sunrise to the next. It is beyond the skill of man to apportion justly amongst the several elements of change introduced the various modifications which are wrought. Is it not possible, however, to separate from the complex something which is due to the action of the prostatic secretion on the woman?

Your leading article aptly marshalled the knowledge of the physiologist and comparative anatomist but ignored completely the evidence to be found by clinical observation. Medicine owes great debts to physiology, especially in the domain of internal secretions, but at various times portions of the debt have been repaid. We should know but little of the action of the thyroid gland on the eyebrows or on the subcutaneous tissue had we relied solely on laboratory studies of health. It was only by its therapeutic administration in disease that the gland was seen to stimulate scanty eyebrows to luxuriant growth and to reduce thick myxœdematous tissues to due proportions. This is only one of many instances in which clinical medicine has lightened the dark places of physiology.

When the prostate gland substance, in tablet form, is taken by the mouth by unhealthy women quite definite results follow. Normal breast tissue is soft and of a velvet-like consistency. Such breasts are not common amongst women with systemic disease. With the development of even minor degrees of chronic intestinal stasis the mammary tissues begin to feel granular when palpated between the fingers and thumb, and are tender at the menstrual epoch. After a time the hardening becomes greater, the granularity coarser, and the tenderness more continuous, until the condition is recognised as chronic mastitis. Sir Arbuthnot Lane described this sequence many years ago, and more recently in his article in THE LANCET of Nov. 9th, where he also pointed out that the prostate gland has the power of diminishing the granularity and of abolishing the pain and tenderness of such breasts. Of this fact there can be no doubt, because the effect is pro-

duced even when the prostate is administered by the mouth in tablet form. The evidence is not merely that of an altered symptom, but also that of an altered physical sign observable by simple palpation. One of the most convincing cases which I ever observed was that of a woman whose breasts were so tender that she dreaded to enter any crowded place because of the intensity of the pain induced by any slight accidental pressure. I gave her dried prostate gland in tablet form, and the condition was completely controlled. After a time she ceased to take the tablets continuously and used them only when tenderness threatened to recur.

The secretion of the male organ is, therefore, clearly useful to the diseased female in this respect. It seems justifiable to suggest by analogy that it is capable of effecting other changes in other tissues and may be responsible for the improved state of nutrition and many other chemical and structural changes which follow upon the consummation of the sexual functions. A most fascinating biological principle is thus vindicated. The prostate gland stands pre-eminent as an organ found in one sex only, but producing a secretion needful to the complete well-being of the opposite sex, an organ possessed by one to be shared by two, and serving as a biochemical keystone linking complement to complement. I am, Sir, yours faithfully,

London, W., Nov. 16th, 1918. N. MUTCH.

RECONSTRUCTION IN NEUROLOGY.

To the Editor of THE LANCET.

SIR,—In the annotation under this heading in your issue of Nov. 16th you observe that Dr. Aldren Turner stated in his paper on the Neuroses of the War that all neuroses are the consequence of a failure of psychological adaptation. The wording suggests that Dr. Turner is responsible for this view, and I am sure that it was not intended to convey this meaning. The view that neuroses are failures of adaptation is one that was coming to the forefront long before the war started. I quote the following observation of Dr. Jung, in a paper read before the Seventeenth International Medical Congress in London, 1913:—

"The psychological trouble in neuroses, and neurosis itself, can be considered as an act of adaptation that has failed. This formulation might reconcile certain views of Janet's with Freud's view that a neurosis is—under a certain aspect—an attempt at self-cure; a view which can be and has been applied to many diseases."

I am, Sir, yours faithfully,

MAURICE NICOLL.

Empire Hospital for Officers, Westminster, S.W., Nov. 16th, 1918.

*** Captain Nicoll is right in believing that our words were not intended to make any such claim.—ED. L.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

To be temporary Surgeon-Lieutenants: J. H. Sheldon, J. T. Johnston.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. H. P. W. Barrow relinquishes the temporary rank of Colonel on re-posting.

Temp. Major R. H. Cooper and Capt. F. C. Moore to be temporary Lieutenant-Colonels whilst specially employed.

Temp. Capt. W. B. Davy to be acting Major whilst specially employed.

To be acting Lieutenant-Colonels whilst in command of a Medical Unit: Temp. Capt. (acting Major) F. R. Thornton, Lieut. (temp. Capt.) A. J. Hickey, Temp. Capt. L. G. Brown, Temp. Major C. V. Mackay, Major F. A. Stephens.

Temp. Capt. H. Dodgson to be temporary Major.

To relinquish the acting rank of Major on re-posting: Temp. Capts. H. F. Wilson, W. S. Martin, T. P. Cole; Capt. E. Catford.

To be acting Majors: Temp. Capts. D. MacIntyre, H. J. Pickering, C. S. E. Wright, R. G. Riches, J. S. Hall, G. H. Darlington and P. A. Leighton (whilst specially employed), W. A. Clayton (whilst commanding troops on a Hospital Ship); Capt. D. C. G. Ballingall.

Lieutenants (temporary Captains) to be Captains: J. M. McKenzie, R. R. Thompson, (acting Major) A. E. Richmond, (acting Lieutenant-Colonel) A. J. Hickey.

Temporary Lieutenants to be temporary Captains: J. B. J. L. Dalby, F. G. Beatty, J. Walker, H. A. R. E. Unwin, A. Y. Hutchison, D. A. H. Moses, E. Evans, C. Watson.

A. D. Clinch, late temporary Captain, is granted the honorary rank of Captain.

Temp. Capt. B. H. Mellon, from A.V.C., to be temporary Captain.

Officers relinquishing their commissions: Temp. Capts. W. H. Wishart (on account of ill-health, and is granted the honorary rank of Captain), V. G. Best, T. B. Sellors, P. A. Hall, G. R. Gray, J. Welsh (on account of ill-health contracted on active service, and is granted the honorary rank of Captain).; Temp. Hon. Lieut. S. A. Moor.

The undermentioned on transfer to R.A.F.: Temp. Capts. W. H. Anderson, F. H. Bowen, E. Brown, J. D. Bridger, E. R. Bastard, L. C. Blackstone, W. Bannerman, J. E. Cable, J. E. Cox, E. P. Chennells, E. P. Carmody, G. W. Clark, L. G. Davies, A. J. Davoren, R. H. Dixon, R. A. G. Elliott, J. Gardner, H. M. Holt, P. H. Hadfield, H. Harvey, R. J. Hearn, A. E. F. F. Huntsman, T. R. Hunter, F. Irvine, F. C. Jobson, W. M. Jeffreys, J. Keenan, W. R. Kemp, A. Lindsay, R. W. Longden. W. B. Loveless, G. Lewin, C. E. Lowe, T. E. Mulvaney, F. C. Morgan, A. E. McCulloch, P. W. McKeag, W. R. Nasmyth, H. J. Orr-Ewing, J. J. O'Mullane, W. H. Payne, A. W. P. Pirie, H. W. Pigeon, T. S. Rippon, H. Y. Riddell, J. I. Russell, A. F. Rook, L. C. Rivett, R. H. Robbins, A. B. Rooke, T. E. Regan, R. L. Roe, D. Ranken, J. J. Sinclair, H. B. Smith, C. Saikeld, J. B. Stevenson, A. E. B. Sim. W. A. Simpson, F. O. Spensley, C. E. Thwaites, A. Thompson, C. Visger, A. W. Weston, A. J. O Wigmore, D. Wilson, J. L. Whatley, W. F. Walker, H. E. Whittingham, H. N. Wright, L. A. Walker, W. P. Wippell, A. H. Wade, M. R. Dobson, M. Hocken, O. May, C. Peacock, C. P. Strong, A. H. L. Thomas; Temp. Lieuts. C. J. Miner, C. T. Costello, J. A. Johnson, P. M. Roberts.

Queen Mary's Army Auxiliary Corps.

To be Controllers of Medical Services: Jane H. Turnbull, Laura S. Sandeman.

To be Medical Controllers: Irene C. D. Eaton, Mabel A. D. Crawford, Cicely M. Peake, Grace E. Soltau, Mary G. McCullough, Katherine J. S. Clark, Alice Stalker, Eleanor E. Bourne, Agnes H. Nicholl.

To be Recruiting Medical Controllers: Adeline M. Roberts, Julia V. Christie, Anne M. Watson, Elizabeth Budd, Eleanor A. Montgomery, Hester M. Henderson, Mary B. Ferguson, Amy Hodgson, Charlotte A. F. Sturm.

To be Medical Officials: Hannah K. Alton, Marjorie McMullen, Celia M. C. Macneil, Amy F. Nash, Adeline H. Campbell, Alice Rattray, Stephanie P. L. H. T. Daniel, Margaret E. Douglas, Olive M. Anderson, Annie S. Robertson, Lilian M. W. Grant, Agnes M. Cowan, Rosalie Holmes, Hilda W. Esson, Jessie H. Gellatly.

SPECIAL RESERVE OF OFFICERS.

Major G. Lane is placed on the Retired List on account of ill-health contracted on active service.

Capt. R. L. Newell relinquishes the acting rank of Major on re-posting.

Officers relinquishing their commissions: Capts. R. G. Bannerman (on account of ill-health contracted on active service, and is granted the rank of honorary Captain) and D. Dempster (on account of ill-health caused by wounds, and is granted the honorary rank of Captain).

Captains to be acting Majors: A. F. L. Shields, A. Picken.

Lieutenants to be Captains: C. M. Titterton, R. N. Mackenzie, J. I. Watson, H. Taylor, C. Shaw-Crisp.

To be Lieutenants: J. M. Melvin and C. O. Anderson (from Glasgow University Contingent, O.T.C.), G. H. Middleton (from Edinburgh University Contingent, O.T.C.), S. E. Critchley (from Manchester University Contingent, O.T.C.).

TERRITORIAL FORCE.

Lieut.-Col. (Hon. Surg.-Col.) A. Thorne is retired on completion of tenure of command, and is granted permission to retain his rank and to wear the prescribed uniform.

Major A. J. Hall to be Lieutenant-Colonel and is restored to the establishment.

Major A. H. Buck relinquishes his commission on account of ill-health, and is granted the honorary rank of Major.

Capt. J. M. Bowie to be Major.

Temp. Capt. W. H. Broad to be Major (temporary).

Capt. J. P. I. Harty is seconded for duty with the R.A.F.

Capt. N. Milner is restored to the establishment.

Capts. L. Rawes, H. F. Everett, J. B. F. Wilson, J. McL. Macfarlane, and A. Rodger to be acting Majors whilst specially employed.

Capt. (temp. Major) F. D. S. Jackson relinquishes his temporary rank, and is restored to the establishment.

Capt. (acting Major) G. L. Chiene relinquishes his acting rank and is restored to the establishment.

Capts. F. M. Robertson and F. R. H. Laverick relinquish their commissions on account of ill-health contracted on active service, and are granted the honorary rank of Captain.

Capt. A. H. Evans is seconded.

Capt. (Brevet Major) H. F. Horne to be Major and to remain seconded.

Capts. E. T. Roper and M. W. Williams relinquish their commissions on account of ill-health, and are granted the honorary rank of Captain.

Capts. (acting Majors) W. T. Torrance and G. A. Auden relinquish their acting rank on ceasing to be specially employed.

Capt. F. C. Moore is seconded whilst holding a temporary commission in the R.A.M.C.

Capt. A. J. Walton is seconded for duty overseas.

TERRITORIAL FORCE RESERVE.

Capts. R. J. McConnell (from a Field Ambulance), N. P. Laing (from Attached to Units other than Medical Units), J. McG. Deuchars (from R.A.M.C.) to be Captains.

Canadian Army Medical Corps.

Temporary Captains to be temporary Majors: J. L. Tower, K. E. Hollis.

Temporary Captains to be acting Majors while specially employed: J. H. Moore (as Surgeon at a General Hospital), H. H. McIntosh (on X Ray Work).

INDIAN MEDICAL SERVICE.

Lieut.-Col. J. L. T. Jones is retired in consequence of ill-health.

Capts. C. R. O'Brien, N. H. Hume, and D. M. C. Church to be Majors.

ROYAL AIR FORCE.

Medical Branch.—Major (acting Lieut.-Col.) H. C. T. Langdon retains the acting rank of Lieutenant-Colonel whilst employed as Lieutenant-Colonel, from (S.O.). J. T. T. Forbes is granted a temporary commission as Lieutenant.

Dental Branch.—J. Jones and J. Wren are granted temporary commissions as Lieutenants.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary meeting of the Council was held on Nov. 14th, Sir George Makins, the President, being in the chair.—It was resolved that Diplomas of Membership should be granted to 94 successful candidates; also that Licences in Dental Surgery should be granted to 19 successful candidates.—Mr. William S. Haslam was re-elected a member of the Committee of Management.—In June last the President called the attention of the Council to the heavy rate of rejections at the Primary Examination for the Fellowship, to the dissatisfaction with which the examination was regarded by many, and suggested that it would be desirable to take into consideration the possibility of altering the subjects and character of the examination with a view to making it of more practical value as a test for surgeons likely to become chiefly engaged in operating practice. The matter was referred to the Nomination Committee, and a report from that committee was now presented, approved and adopted. It was to the effect that: (1) The Primary Examination for the Fellowship is an honours examination and should be continued as such; and (2) all the questions set should be relevant to the science of surgery.—The President reported that, in accordance with Article 6 of the Regulations for the award of Sir Gilbert Blane's prize medals, which provides that "if the unadjudicated medals should exceed four their value is to be given to the Supplemental Fund for the Children of Medical Officers," he had sent a cheque for £42, the amount of four years' income from the Blane Medal Fund, to the honorary treasurer, Naval Medical Compassionate Fund, Admiralty Medical Department, 12, Charles-street, Berkeley-square.—A letter was read from the Board of Scientific Studies forwarding a copy of a report by a committee of the Board favouring the introduction of a metric system of weights and measures in this country, and asking for the comments of the College in reference thereto. The consideration of this matter was postponed.—Sir George Makins and Sir John Bland-Sutton were re-elected as representatives of the College on the Board of Scientific Studies for the year 1919.—The President reported that the vacancy on the Court of Examiners occasioned by the expiration of Mr. W. G. Spencer's term of office would be filled at the ordinary meeting of the Council on Dec. 12th. Mr. Spencer is not applying for re-election.—The President reported that he had granted the use of the lecture theatre on Nov. 13th, 20th, and 27th, and Dec. 4th and 11th, for five lectures by Dr. E. Mellanby, acting superintendent of the Brown Animal Sanatory Institute.

At the Primary Examination for the Fellowship, held on Nov. 6th, 7th, and 12th, 35 candidates presented themselves, of whom 15 (including six women) were approved and 20 were rejected. The following are the names and medical schools of the successful candidates:—

Arthur Silver Burns, McGill Univ.; Hetty Ethelberta Claremont and Edith Marian Evans, Lond. School of Med. for Women; Sidney Forsdike, Middlesex Hosp.; Ada Marion Freeman, Lond. School of Med. for Women; Henry Albert Harris, Univ. Coll.; George Franklin Wise Howarth, Middlesex Hosp.; Haji Hyderali Khan, Bombay Univ., Middlesex and Guy's Hosps.; Reginald Cyril Bell Ledlie, Guy's Hosp.; Sybil Grace Mocatta, Lond. School of Med. for Women; William George Rose, St. Mary's Hosp.; Harry Spibey, Cambridge Univ.; Mildred Warde, Manchester Univ. and Lond. School of Med. for Women; Agnes Edie Westwood, Lond. School of Med. for Women; and Frederick Arnold Williamson, Cambridge Univ. and St. Mary's Hosp.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians of London on Oct. 31st and of the Council of the Royal College of Surgeons of England on Nov. 14th diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon 94 candidates (including 11 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the requisite by-laws. The following are the names and medical schools of the successful candidates:—

John Binford Barnett, Birm. Univ.; Lewis Henry Bartram, Camb. Univ. and St. Bart.'s Hosp.; Frederic James Bennett, Camb. and Manch. Univs.; William Leslie Berry, Camb. Univ. and St. Bart.'s Hosp.; Moshek Zelmanovitch Bochenek, Lond. Hosp.; John Clifford Brown, Birm. Univ.; John Maurice Brydson, Lond. Hosp.; Henry Cecil Herbert Bull, Camb. Univ., Lond. and St. George's Hosps; Frederick Thomas Burkitt, Camb. Univ. and St. Bart.'s Hosp.; Charles Reginald Cade, Guy's Hosp.; Duncan Campbell, New York Univ.; Walter Mattocks Casper, St. Bart.'s Hosp.; Cecil Belfield Clarke, Univ. Coll. Hosp.; Cyril George Coombs, Guy's Hosp.; Eric Ashley Crook, Oxford Univ. and St. Bart.'s Hosp.; William Davies, Cardiff Univ. and Lond. Hosp.; Mary Day, Royal Free and St. Mark's Hosps.; Charles Cottrell Ralph Downing, Camb. Univ. and Univ. Coll. Hosp.; Clarence Franklin Eminson, Charing Cross Hosp.; David Washington Evans, Lond. Hosp.; John Harold Ewen, St. Mary's Hosp.; Paul Faraci, Beirut Med. Coll. and Middlesex Hosp.; Donald Charles Farquharson, St. Mary's Hosp.; George Annesley Fisher, Camb. Univ. and St. Bart.'s Hosp.; Lilian Mabel Fisher, Royal Free Hosp.; John Turnbull Thomson Forbes, Guy's Hosp.; Richard Gainsborough, Oxford Univ. and Guy's Hosp.; George Anthony Goolden, Camb. Univ. and St. Thomas's Hosp.; Lorne Benjamin Graham, Toronto Univ.; Clermont Grantham-Hill, Camb. Univ. and Lond. Hosp.; Denis Paul Guilfoyle, St. Bart.'s Hosp.; Albert William Holgate, Univ. Coll. Hosp.; Eric Theodore Holden, Birm. Univ.; Arthur St. George Joseph McCarthy Huggett, St. Thomas's Hosp.; Cori McColm Jones, Camb. and Liverp. Univs.; Robert David Jones, Liverp. Univ. and St. Bart.'s Hosp.; Edward Gordon Joseph, Edin. Univ.; Florence Maltby Kerruish, Liverp. Univ.; James Kyle, Guy's Hosp.; Victor John Frederick Lack, Lond. Hosp.; Louis Jacques Maurice Laurent, Univ. Coll. Hosp.; Horace Sharman Le Marquand, St. Thomas's Hosp.; Allan Wellesley Lewis, St. Mary's Hosp.; George Strickland Lewis, Bristol Univ.; Sidney Simon Lindsay, St. Thomas's Hosp.; Tudor David Llewelyn, Cardiff Univ. and St. Thomas's Hosp.; George Lyon Lyon-Smith, Camb. Univ. and St. Bart.'s Hosp.; Hector Clive McAlister, Toronto Univ.; Kathleen McCrie McKeown, Royal Free Hosp.; Donald Gregory Macpherson, New Zealand Univ. and Univ. Coll. Hosp.; Walter Edgar Masters, Lond. Hosp.; Gordon Millar, St. Bart.'s Hosp.; Reginald Stanley Millar, Durh. Univ. and Guy's Hosp.; Arthur Richard Neckles, Guy's Hosp.; Wilfrid Otts, Camb. Univ. and St. Thomas's Hosp.; Harry Palmer, Lond. Hosp.; William Hotson Palmer, Camb. Univ. and St. Thomas's Hosp.; *Aerath Narayanan Nanoo Panikker, Edin. Univ.; William Alfred Whitehouse Parkes, Birm. Univ.; Robert Hughes Parry, Middlesex Hosp.; Frederic Paul Nigel Parsons, Camb. Univ. and Univ. Coll. Hosp.; Eugene Arthur Pearson, Lond. Hosp.; Evan Albert Idris Phillips and Montagu Cecil Polhill, Univ. Coll. Hosp.; Thomas Dawson Pratt, Leeds Univ.; Hubert Llewellyn Pridham, St. Bart.'s Hosp; Ronald Seton Ralph and Francis William Reitz, Guy's Hosp.; Theodore Ernest Roberts, Glasg. Univ.; Ronald Henry Ottywell Betham Robinson, Camb. Univ. and St. Thomas's Hosp.; Joan Margaret Ross, St. Mary's Hosp.; Charles Cecil Rowland, Lond. Hosp.; Elizabeth Dill Russell, Royal Free Hosp.; Joseph Harold Shelton, King's Coll. Hosp.; Hilda Nora Shufflebotham, Birm. Univ.; Arthur Herbert John Smart, Camb. Univ. and St. Thomas's Hosp.; Frances Minnie Spickett, Royal Free Hosp.; Jacques Spira, Brussels Univ. and St. Thomas's Hosp.; Frank Hugo Stuttaford, St. Mary's Hosp.; Graham McKim Thomas, Guy's Hosp.; Edward Sherman Toogood, Univ. Coll. Hosp.; Norah Edith Trouton, St. Mary's Hosp.; Robert Hugh Turner, Bristol Univ. and Univ. Coll. Hosp.; Martin Baird Moore Tweed and Jacob Eliza De Villiers van der Merwe, Guy's Hosp.; Donald Wallice, Camb. Univ. and Lond. Hosp.; Hugh Pennefather Warren, Lond. Hosp.; †Thomas Digby Wheeler, Manitoba Univ.; Alice White and Ethel White, Sheffield Univ.; Julius Maurice Winnett, Lond. Hosp.; Geoffrey Winter, Birm. Univ.; Robert Wolff, Middlesex Hosp.; Sidney Carver Woodhouse, Lond. Hosp.

* M.R.C.S. Diploma alone conferred. † M.R.C.S. Diploma conferred on Oct. 10th.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES: GLASGOW BRANCH.—A course of lectures (illustrated by diagrams and lantern slides) will be delivered on the following Fridays, at 8 P.M., in the Berkeley Hall, Berkeley-street, Glasgow. Nov. 22nd: Professor F. O. Bower, F.R.S., Sex in Animals and Plants. Nov. 29th and Dec. 6th: Professor Thomas H. Bryce, F.R.S., Reproduction in Mammals. Dec. 13th: Professor Robert Muir, F.R.S., Microbic Infection in Venereal Disease. Dec. 20th: The Effects of Venereal Disease on the Body. Admission is free, and all engaged in teaching and social work are specially invited.

INFLUENZA IN LEICESTER.—The epidemic, which was of a very severe nature, now appears to be waning rapidly so far as fresh cases are concerned. Although the death-rate is still high, many of the deaths notified are of persons who have been seriously ill for some time. To combat the epidemic doctors and nurses usually connected with infant welfare, tuberculosis, and school inspection were diverted from their work. V.A.D. and other voluntary workers were also utilised. Some 60 beds were cleared at the isolation hospital by sending out scarlet fever and tuberculosis cases in order to provide the institutional treatment which was urgently needed, and over 70 cases have been treated there.

DONATIONS AND BEQUESTS.—The late Mr. James B. Dugdale, of Wareham, Dorset, has left by will £5000 to King Edward's Hospital Fund and £1000 each to the Dorset County Hospital and the Victoria Hospital, Bournemouth.—Under the will of the late Miss Emily C. Talbot, of Glamorgan, the testatrix has left £1000 each to King Edward VII.'s Hospital, Cardiff, the Swansea General and Eye Hospital, the University College of South Wales and Monmouthshire, and the Rest (seaside) Convalescent Homes at Porthcawl and Southerndown, South Wales; and £500 to the Gower Nursing Association of Queen Victoria's Institute for Nurses.—By the will of the late Mrs. Jessie M. Smith, of Pollokshields, the testatrix left £10,000 to the Glasgow Royal Infirmary; £5000 each to the Western Infirmary and the Victoria Infirmary, Glasgow; £2000 each to the Ayr County Hospital and the Royal Samaritan Hospital for Women, Glasgow; £500 each to the Glasgow Magdalene Hospital, the Mission to the Outdoor Blind of Glasgow and the West of Scotland, and the Glasgow Society for the Education of the Deaf and Dumb.—The late Mrs. Hannah Derbyshire, of Oldham, has among other legacies left £1000 to Oldham Royal Infirmary.—As a peace thankoffering Mr. W. T. Farr, of Mumbles, has given £5000 to the Swansea General Hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The General Election.

THIS Parliament comes to an end this week, and a General Election will follow immediately. The voting takes place on Saturday, Dec. 14th. The counting of the votes is postponed until those recorded by the soldiers who are in Belgium and France can be received.

The War Casualties.

Mr. MACPHERSON, Under Secretary of State for War, stated last Tuesday that the figures available of the British casualties during the war were necessarily incomplete. Up to Nov. 10th, however, the following were the figures, including Dominion and Indian troops, for the various theatres of operations:—

Theatre of operations.	Killed (including died from wounds and died from other causes).		Wounded.		Missing (including prisoners).		Totals.	
	Officers.	Other ranks.	Officers.	Other ranks.	Officers.	Other ranks.	Officers.	Other ranks.
France...	32,769	526,843	83,142	1,750,273	10,846	315,849	126,757	2,592,865
Italy ...	86	941	324	4,612	38	727	458	6,280
Dardanelles ...	1,785	31,737	3,010	75,508	259	7,431	5,053	114,676
Salonika	285	7,330	818	16,058	14	2,713	1,217	26,101
Mesopotamia...	1,340	29,769	2,429	48,686	566	14,789	4,335	93,244
Egypt ...	1,098	14,794	2 311	35,762	193	3,705	3,592	54,261
East Africa	380	8,724	478	7,276	38	929	836	16,929
Other theatres	133	680	142	1,373	51	908	328	2,971
Totals ...	37,876	620,828	92,664	1,939,478	12,094	347,051	142,634	2,907,357

Grand total 3,049,991

The numbers "missing" include 6741 officers and 164,767 other ranks known to be prisoners of war, and also over 30,000 officers and other ranks whose deaths have been accepted for official purposes. In addition to the above figures there have been 19,000 deaths from various causes among troops not forming part of any of the Expeditionary Forces.

HOUSE OF LORDS.

WEDNESDAY, NOV. 20TH.

Prevention of Venereal Disease.

Lord SYDENHAM asked His Majesty's Government what steps were being taken to prevent the spread of venereal disease during and after demobilisation. He said that after previous wars this disease had entailed effects upon the civil population which were existing to this date. At the present time there were conditions which were even more favourable to the spread of the disease than those which existed in the past, and from personal study he was in a position to state that unless measures were taken quickly to combat the evil it would lead to most serious results. Legislation to deal with it had been too long delayed. Nothing had been done except the passing of a Bill to deal with quacks and quack remedies. That Bill had done good, but not as much as it might have done, and quacks and quack remedies were still in existence in some places. Many more treatment centres on the lines of those which had already been set up by the Local Government Board would be needed throughout the country when demobilisation commenced, and time was running very short. The Criminal Law Amendment Bill had been held up, and he assumed that the Joint Select Committee would be discharged, though he hoped that its labours would not be wholly thrown away. He could not understand why the Government had not proceeded with a Bill which was so urgently needed. He pressed that it should be re-introduced and passed into law as quickly as possible. It would be a disgrace to humanity if Clause 5, which made it a crime knowingly to communicate venereal disease, were not enacted. Such an offence might easily be worse than murder, for it might not only wreck one life, but young lives as yet unborn. Regulation 40 D, he believed, would shortly be abolished. He did not think that it had done any real good, but its disappearance left the country without any protection against the wilful spread of the disease. He hoped that a number of points of special importance would be dealt with. First of all it was required that no soldier or sailor should be discharged while in an infected state. He was sorry to say that the total number of infected men was very formidable. Considerable strengthening of the medical provision for dealing with the civil population was also necessary, as the present line of defence against the disease was not sufficient. The Prime Minister had laid great stress the other day upon the vital necessity of raising the standard of public health in the country. He (Lord Sydenham) hoped the Prime Minister realised that the conditions he deplored were largely due to the ravages of venereal disease, that most insidious enemy of the national vigour and the cause of immense economic loss. He pressed the Government to give an undertaking that they would grapple with the peril which would become acute when demobilisation came.

Lord MUIR-MACKENZIE said that the danger regarding the present situation was that it looked like a deadlock. His opinion from his work on the Joint Committee was that prompt measures were required. A disastrously long period of time had been allowed to elapse between the sending of the Bills to the Joint Select Committee. He did hope that the Government would not let the labours of that Committee be thrown away.

Viscount PEEL (replying for the Government) said that the reason why the Criminal Law Amendment Bill had not been proceeded with was the Parliamentary difficulties arising from a crowded session. In judging the future attitude of the Local Government Board towards this subject it was only fair to remember what they had done in the past. Arrangements were made as long ago as April last between the Local Government Board and the Army Council that soldiers about to be discharged should be examined, and that if they were suffering from venereal disease they should be detained in the military hospitals until such time as the disease had disappeared. A fresh situation might arise on demobilisation, but the Local Government Board were fully aware of the dangers which might arise from the release of infected men from the Army and Navy, and at the present moment discussions were taking place with the War Office with a view to preventing infected men being let loose among the civil population. Lord Sydenham might be interested to learn that some 130 treatment centres for venereal disease had already been established in England and Wales. If this was not enough allowance must be made for the shortage of medical staff and other difficulties created by the war. The Local Government Board together with the Ministry of National Service were arranging for the release of army doctors and naval surgeons who had specialised knowledge of venereal disease, and it was intended to press upon local authorities the necessity for establishing further treatment centres and clinics, especially in the evening. He could give a general assurance that the whole matter was being not only examined but dealt with.

The Archbishop of CANTERBURY deplored the delay in dealing with the subject. Several proposals had been made and successively tinkered with, but the matter remained in a state of confusion. He strongly urged that legislative action should be taken to combat the evil at the earliest possible moment.

Lord SYDENHAM thanked the Government for their reply and said that the most important thing, in his opinion, was that there should be coöperation between the Local Government Board and the naval and military authorities.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 13TH.

Influenza in the Army.

Viscount WOLMER asked the Under Secretary for War (1) how many cases of influenza in the British Army in France and England were reported during the months of September and October, 1918; what hospital accommodation was there to cope with these cases; whether any fresh hospital accommodation was provided; and, if so, how many beds; and (2) how many officers and men of the British Army died in England and France respectively from influenza or pneumonia during the months of September and October, 1918.—Mr. MACPHERSON replied: I regret that the figures for the United Kingdom for the month of October are not yet available. The figures for September are:—

	Influenza.		*Pneumonia.*	
	Admissions.	Deaths.	Admissions.	Deaths.
Officers	110	Nil.	20	Nil.
Other ranks ...	2791	18	361	75

I cannot give the figures in the detailed form desired in the case of France. In September there were 92 admissions

to hospital on account of pneumonia and 24 deaths. The figures for October are: 2702 admissions to hospital and 1044 deaths due to pneumonia, and 24,894 admissions to hospital and 421 deaths due to influenza. As regards hospital accommodation on Sept. 1st there were 96,000 vacant beds in hospitals in the United Kingdom, and since that date an additional 8000 beds have been provided.

Viscount WOLMER: Is the right honourable gentleman taking steps to have the mortality statistics of the Army compared with the civilian statistics?—Mr. MACPHERSON: I cannot say whether we are doing that now, but I will see that it is done.

Viscount WOLMER asked whether the right honourable gentleman had received complaints in regard to the overcrowding of hospitals; and whether steps had been taken in all those hospitals in which influenza or pneumonia cases were numerous to reduce the number of inmates.—Mr. MACPHERSON answered: No complaints have been received regarding overcrowding in hospitals. It is impossible in every case to reduce the number of inmates owing to the widespread and very extensive nature of the outbreak, and the fact that the hospitals are at present strained to the utmost by the arrival of wounded from overseas.

Viscount WOLMER asked how many cubic feet of air space per patient was considered necessary by the military authorities for patients in military hospitals suffering from influenza and pneumonia.—Mr. MACPHERSON replied: At present 600 cubic feet of air space has been provided as a minimum in every hospital, and with adequate ventilation and efficient warming there is no evidence that this is insufficient for ordinary cases. It is recognised that cases of influenza and pneumonia require additional air space, and this is given whenever practicable.

Colonel MCCALMONT: Is it not the case that in many districts where there has been this epidemic the figures have been very much lower for the troops than for the civilian population?—Mr. MACPHERSON: That is so.

British Columbia Medical Degrees.

Mr. CECIL HARMSWORTH asked the Colonial Secretary whether he was aware that under existing conditions medical men from British Columbia were prevented from registering in Great Britain unless they took a British degree; whether this was in consequence of arrangements made by the Foreign Office with one or more foreign and Allied countries; and whether any such regulations could be suspended in view of the present great lack of medical men.—Mr. LONG replied: The difficulty in question arises from the fact that it had not been possible to arrange for such reciprocity between the United Kingdom and British Columbia as is considered to be necessary before an Order in Council can be issued applying the second part of the Medical Act, 1886, to that Province.

THURSDAY, NOV. 14TH.

Medical Service of the Air Force.

Mr. JOYNSON-HICKS asked the Under Secretary to the Air Ministry whether he was aware that at the last meeting of the Medical Administrative Committee they unanimously reaffirmed their view that the new medical administrator should be willing to accept the principles laid down in the Medical Advisory Committee's report, on the ground that unless this step were taken all the work of such Committee might be undone to the detriment of the Air Service; and whether the new administrator was prepared to accept such resolution.—Major BAIRD answered: The reply to the first part of the question is in the affirmative. The offer of appointment was made to Colonel Fell on the recommendation of the Medical Administrative Committee, which had not ascertained whether he concurred in the report of the Medical Advisory Committee. One of the conditions of the offer made to Colonel Fell is that he should be guided by the principles laid down by the Watson Cheyne Committee, subject to certain amendments as regards principles of administration.

Rabies in Devon and Cornwall.

Answering Mr. CAREW, Mr. PROTHERO (President of the Board of Agriculture) said: So far there has been no spread of rabies beyond the two counties (Devon and Cornwall) in which it was originally found to exist. But the period of incubation of rabies, though usually one of days, may be one of months, and it is always possible that the disease may have been carried to another part of the country in a dog which has not yet developed it. I trust, however, that the measures which are being taken against the disease in the two counties are such as to insure its final eradication after all the present sources of infection have been brought to light. I am informed by the Local Government Board, who deal with hydrophobia, that there have been no cases of that disease, and consequently no deaths. The number of persons known to the department to have been bitten or scratched by rabid or suspected dogs is 25.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.

MEETINGS OF SECTIONS.

Monday, Nov. 25th.

ODONTOLOGY (Hon. Secretaries—F. N. Doubleday, G. Paton Pollitt, J. Howard Mummery): at 8 P.M.

Casual Communication by Mr. J. Howard Mummery.

Papers:

Mr. Cole and Mr. C. H. Bubb: Bone Grafting in Un-united Fractures of the Mandible, with Special Reference to the Pedicled Graft.

The Royal Society of Medicine keeps open house for R.A.M.C. men and M.O.'s of the Dominions and Allies. The principal hospitals in the metropolis admit medical officers to their operations, lectures, &c. Particulars on application to the Secretary at 1, Wimpole-street, London, W.1.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.

MONDAY, Nov. 25th.—8.30 P.M., Paper:—Prof. J. D. Adami, Col., C.A.M.S.: Inheritance and Acquirement of Disease, a Study of the Rejected.

Owing to the declaration of the suspension of hostilities, the meeting of the Society for Monday, Nov. 11th, was adjourned until Monday, Dec 2nd, at 8.30 P.M., when Col. H. J. Waring will open a discussion on Reconstruction in Medical Education and Practice.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY, Nov. 27th.—4.30 P.M., Lord d'Abernon, G.C.M.G. Drink Control in Various Countries.

THURSDAY.—4.30 P.M., Bhupendranath Basu: Some Aspects of Hindu Life.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Clinics each week-day at 2 P.M., Wednesday, Friday, and Saturday also at 10 A.M.

(Details of Post-Graduate Course were given in issue of Nov. 2nd.)

THE THROAT HOSPITAL, Golden-square, W.

MONDAY, Nov. 25th.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

UNIVERSITY COLLEGE, LONDON, Gower Street, W.C.

Two Lectures on Wound Shock.

FRIDAY, Nov. 29th.—5 P.M., Prof. W. M. Bayliss. (Lecture II.)

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures on Public Health Problems under War and After-war Conditions (each Lecture will be followed by a Discussion):—

WEDNESDAY, Nov. 27th.—4 P.M., Lecture VIII.:—Alderman C. Spencer: National Kitchens and the National Health.

NATIONAL ASSOCIATION FOR THE PREVENTION OF INFANT MORTALITY, at Dr. William's Library, Gordon-square, W.C.

Three Lectures on the Feeding of Children:—

TUESDAY, Nov. 26th.—5.30 P.M., Lecture III.:—Dr. E. Pritchard: The Drawing up of Diet Sheets.

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Sen. H.S. £250.
Barnstaple, North Devon Infirmary.—H.S. £150.
Birkenhead Borough Hospital.—Jun. H.S. £170.
Bridgend, Glamorgan County Council.—Temp. Asst. M.O. 6 gs. p.w.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Carlisle, Cumberland Infirmary.—Female H.P. £250.
City of London Hospital for Diseases of the Chest, E.—Res. M.O.
Derbyshire County Council.—Tuberc. Officer. £500.
Devonport, Royal Albert Hospital.—Res. H.S. £200.
Dorchester, Dorset County Council Education Committee.—School Dentist. £350.
Dorset County Council.—Female Temp. Asst. M.O. £400.
Elizabeth Garrett Anderson Hospital, Euston-road.—Female H.P. Also Obst. Asst., Two H.S.'s. £50. Also Clin. Assts. Also Res. M.O. at House of Recovery, New Barnet. £60.
Essex County.—M.O.H. £1000.
Forest Gate, Sick Home.—L.T. 7 guineas per week.
Glasgow District Mental Hospital, Gartloch.—Asst. M.O.
Hellingly, East Sussex County Asylum.—Temp. Asst. M.O. 7 gs. p.w.
Leeds Hospital for Women and Children.—Hon. S.
Manchester, Baguley Sanatorium.—Med. Supt. £550.
Monmouthshire County Council.—Female Asst. M.O. £400.
Nottingham General Hospital.—Female H.P. and H.S. £250.
Queen's Hospital for Children, Hackney-road, E.—Temp. Assist. P. £25.
Royal College of Physicians, Pall Mall East.—Milroy Lecturer.
Royal Free Hospital, Gray's Inn-road, W.C.—Female Medical and Gynæcological Registrar.
St. Helens, Lancs, Pilkington Special Hospital.—Res. M.O. £500.
St. Peter's Hospital for Stone, &c., Henrietta-st., W.C.—Jun. H.S. £75.
Sheffield, Jessop Hospital for Women.—Hon. Asst. M.O.
Sheffield Royal Infirmary.—Two H.S.'s. £150.
Shrewsbury Dispensary, 42, St. John's hill, Shrewsbury.—Locum M.O.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Biggar (Lanark), Pontymister (Monmouth), and Witney (Oxford).

Births, Marriages, and Deaths.

BIRTHS

DUTTON.—On Nov. 16th, at St. Petersburgh-place, Bayswater, the wife of Surgeon Lieutenant F. B. Dutton, M.B., R.M., of a daughter.

MITCHELL.—On Nov. 16th, at Leintwardine, the wife of Major Wright Mitchell, R.A.M.C., of a daughter.

QUACKENBOS.—On Nov. 20th, at a nursing home in Taunton, the wife of Maxwell Quackenbos, M.D., of a son.

MARRIAGES.

ALLEN-MAUGER.—On Nov. 12th, at Rouen, T. Stevens Allen, F.R.C.S. Ed., Captain, R.A.M.C., son of Mr. and Mrs. T. Stevens Allen, of "Tenchleys," Forest Hill, to Elisabeth, daughter of the late Mons. G. L. Mauger and Mme. Georges Mauger, of Rouen.

WILTSHIRE—MONCK-MASON.—On Oct. 26th, at Alexandria, Captain H. G. Wiltshire, R.A.M.C., to Eileen, daughter of the late Colonel G. G. Monck-Mason, R.A., and Mrs. Monck-Mason, of St. Jean de Luz.

DEATHS.

COCKE.—On Nov. 16th, at Wimpole-street, W., of disease contracted on active service, Robert Sturgeon Cocke, F.R.C.S., Captain, R.A.M.C., aged 44.

JONES.—On Sept. 30th, killed in action, Captain Evan Lawrence Jones, R.A.M.C., attached 2nd H.L.I., aged 30.

JUKES.—On Oct. 18th, in Egypt, of neuritis and heart failure after rheumatic fever, Captain Andrew Monro Jukes, M.D., I.M.S.

PHILSON.—On Nov. 13th, at Karachi, India, Colonel S. C. Philson, A.D.M.S., R.A.M.C., aged 58.

SPURRELL.—On Nov. 8th, at the 19th General Hospital, Alexandria, Captain Herbert George Flaxman Spurrell, R.A.M.C., aged 42.

WINTER.—On Nov. 15th, at the 20th General Hospital, France, Captain Laurence Amos Winter, M.D., R.A.M.C., aged 50.

WOO.—On Nov. 15th, at South Devon and East Cornwall Hospital, Frederick Joseph Woo, M.B., Ch.B., F.R.C.S. Edin., aged 27, House Surgeon of the Hospital, from pneumonia following influenza.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

EDITORIAL NOTICE.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. W. Allingham, Orsett; Admiralty, Lords Commissioners of the, Lond.; Dr. F. W. Alexander, Lond.

B.—British Commercial Gas Association, Lond.; Lt.-Col. H. W. Bayly, R.A.M.C.(T.); Sir John Byers, Belfast; Dr. G. S. Brock, Lond.; Messrs. Banton, Mackrell, and Co., Lond.; Mr. W. P. Bettany, Lond.; Dr. C. R. Box, Lond.; Dr. R. A. Bennett, Torquay; Capt. P. H. Bahr, D.S.O., R.A.M.C.; Mr. J. L. Balderston, Lond.

C.—Mrs. S. H. Connolly, Lond.; Canada, Overseas Military Forces of, D.G.M.S. of; Dr. J. T. Clarke, Ipoh; Mr. W. J. B. Carter, St. Albans; Dr. P. J. Cammidge, Lond.; Coal Control Office, Director of Publicity of, Lond.

D.—Dr. R. Donaldson, Reading; Mr. H. Dickinson, Lond.; Mrs. C. Duggan, Lower Broadheath.

E.—Dr. H. A. Ellis, Middlesbrough.

F.—Dr. R. B. Ferguson, Lond.; Hon. Surg.-Lt.-Com. P. Fildes, R.N.V.R.; Factories, Chief Inspector of, Lond.

G.—Dr. A. K. Gordon, Sheringham; Mr. H. B. Grimsdale, Lond.; Great Northern Central Hospital, Lond.; Capt. J. A. Glover, R.A.M.C.

H.—Lt.-Col. C. B. Harrison, I.M.S. (retd.); Sir Thomas Horder, Lond.; Capt. F. Heatherley, R.A.M.C.; Capt. A. Hines, R.A.M.C.; Dr. H. N. Hardy, Croydon; Major W. E. Home, R.A.M.C.

I.—Irish Ophthalmological Society, Dublin, Hon. Sec. of.

L.—"London"; Local Government Board, Lond., Sec. of; London Dermatological Society; Messrs. Longmans, Green, and Co., Lond.; Dr. R. B. Low, Lond.; Mrs. O. Langmead, M.D., Lond.

M.—Medical Research Committee, Lond.; Lt.-Col. J. L. A. Mackay; Mr. J. McLaggan, Torphins; Duchess of Marlborough, Lond.; Brig.-Surg. Lt.-Col. A. B. R. Myers, Lond.; Dr. C. K. Millard, Leicester; Mr. J. B. Macalpine, Manchester; Medical Society of London; Mr. W. Martindale, Lond.

N.—National Union of Trained Nurses, Lond.; Capt. M. Nicoll, R.A.M.C.; National Baby Week Council, Lond.

O.—Mrs. S. O. O'Reilly, West Wellow.

P.—Capt. J. Pringle, R.A.M.C.; Mr. J. Phillips, R.A.M.C.

R.—Royal Microscopical Society, Lond.; Royal Statistical Society, Lond.; Royal Mail Steam Packet Co., Lond.; Capt. C. H. L. Rixon, R.A.M.C.; Mr. Ernest E. Roye, Southampton; Royal Medical Benevolent Fund, Lond.; Royal Institution, Lond.; Royal Society of Arts, Lond.; Mr. D. D. Robertson, Lond.; Royal Society, Lond.

S.—*St. Bartholomew's Hospital Journal*, Lond., Editor of; Mr. A. H. Style, Pembroke; *The Sphere*, Lond., Editor of; Mrs. F. O. Slade, Lond.; Dr. G. A. Sutherland, Lond.; Scala Theatre, Lond.; Dr. C. G. Seligman, Maghull; Scottish Universities Parliamentary Association, Lond., Chairman of; Dr. E. Stolkind, Lond.; Capt. C. P. Symonds, R.A.M.C.

T.—Tasmania, Agent-General for, Lond.; Dr. J. M. Taylor, Philadelphia; Capt. E. Thorp, R.A.M.C.

V.—Veterans' Association, Lond., Organising Sec. of.

W.—Mr. W. W. Smith, Dublin; Dr. F. P. Weber, Lond.

Communications relating to editorial business should be addressed exclusively to The Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

THE TUBERCULOUS SOLDIER.

Dr. Jane Walker, at the Royal Institute of Public Health on Nov. 13th, described the problem of the tuberculous soldier as one of the most pressing before the country. Owing to the lowered standard of health demanded from recruits in the later days of the war many conscripted men were, she said, unfitted for the duties imposed upon them, and as a consequence became broken in health. More especially had this been the case with the tuberculous. The medical profession, Dr. Walker continued, were not in the best position to deal effectively with tuberculosis, since what Sir George Newman had described as "the when? the how? the what? and the why?" of treatment had not formed part of the training of the medical student, who received practically no instruction at all in prognosis. The omission to instruct medical students in the beginnings of disease was specially disastrous in the case of tubercle. The average case which the student saw in hospital was so advanced that even the man in the street could recognise it as tuberculous, but even these cases were seen in small numbers, as they were not admitted to the wards of general hospitals. Was it therefore to be wondered at, the lecturer queried, that so many practitioners failed to recognise early tuberculosis? While, on the one hand, this failure to recognise early cases had led to the admission of advanced cases to the Army, on the other hand many men had received exemption, as the result of X ray shadows, who were quite normal. Dr. Walker described the failure of sanatorium benefit under the National Insurance Act as scandalous. In London large numbers of patients were waiting for treatment, beds were few, and the period of treatment granted to each patient had been reduced to six weeks, a time totally inadequate to deal with the disease. Naturally, under such circumstances, sanatorium treatment was a failure. The time to deal with the tuberculous soldier was in peace. In the lecturer's experience the relaxation of military discipline resulted in the ex-soldier running amok for a time and taking no interest in work. This constituted a great difficulty in the after-care of the tuberculous soldier. Much of the value of sanatorium treatment was thrown away by allowing the patient to return home without supervision and without occupation. At Nayland Sanatorium a school had been set up for instruction in sheet-metal work and silver jewelry making. These trades had been selected to fulfil three conditions: (1) the tuberculous workman to be his own master; (2) not to work against time; and (3) to obtain an income sufficient to keep him. The man was instructed how to keep a village shop, and was taught clock and watch cleaning as a fill-up for his time. The discussion which followed the lecture centred round the desirability of life in the Dominions, especially South Africa, for the tuberculous soldiers, provided that they were welcome guests, and the necessity of preventing by legislation the production of new slums to take the place of those that had been swept away.

PUBLIC HEALTH IN BOMBAY.

SEVERAL circumstances have combined to render the health conditions of Bombay abnormal during the past three years, chiefly on account of the war. There has been an increase in the population owing to high wages and abundant employment; increase in the birth-rate and in the mortality; overcrowding in every direction; increase in rents and food prices; lastly, increase in income for most of the labouring classes, as well as for the richer people engaged in commerce, while for the salaried and official classes and for persons of small fixed incomes there was a virtual reduction owing to taxation and increased cost of living. The enormous traffic through this city by sea and land, particularly in connexion with the war, adds to the labour and difficulty of health administration, and a special assistant health officer was appointed, and the conservancy staff strengthened, on the suggestion of the chief medical officer, Dr. J. A. Turner.

The health conditions of the city, as set out in Dr. Turner's report for 1917, taking everything into consideration, compare favourably with the normal before the war. Calculated on a population of 979,445 (that of the census of 1911), the total death-rate was 34·09 per 1000, but Dr. Turner considers the population to have really numbered over 1,100,000. There was no epidemic of any disease except plague, and that only to a small extent. The causes of the infant mortality (304 per 1000 births) are considered at length: respiratory diseases, debility, and convulsions account for four-fifths of the whole. Much good work has been done

by Lady Willingdon's organisation for securing proper treatment for women during confinement and for their infants after birth. There are 12 lady health visitors to supplement the work of the corporation midwives, as well as three maternity homes with an infant milk depôt for each. The death-rate in Bombay from all causes (34·09 per 1000) in 1917 was in excess of that for the preceding year (31·21), but slightly below the decennial average (1907–16) of 34·59. The highest ratio was that for respiratory diseases (11·46 per 1000), showing considerable increase over the decennial average of 8·81; nervous diseases (2·10) were also slightly in excess of the average (2·01), but in all other important affections there was a decrease in mortality. The cholera ratio was 0·06, compared with 0·38; that for plague was 1·74, compared with 3·52; and that for small-pox 0·27, compared with 0·59. Zymotic diseases generally showed a ratio of 6·03, compared with 9·22 for the decennium, a very noticeable improvement. The death-rate from all causes varies very considerably according to caste or race. For Hindus, who constitute the large majority of the population, the ratio was 34·46; for Mussulmans, 38·31; for Parsees, 19·81; for Europeans, 21·85 per 1000.

Plague has been continuously present in Bombay since 1896—that is, for 21 years. In 1903 it caused 20,788 deaths, or 26·78 per 1000 of the population; in 1915 there were only 599 deaths (0·61 per 1000), in 1916 the ratio was 2·02, and in 1917 there were 1706 deaths (1·74 per 1000). There were attacks and deaths in each month throughout the year 1917, and from March to the beginning of June it was epidemic, being worst in April as usual. The two Colaba wards suffered most (6·25 and 5·78 deaths per 1000). Inoculation and rat-destruction were carried out vigorously; 501,632 rats were examined at the Parel Laboratory, of which 2·22 per cent. were found to be infected. In April the percentage infected was 5·1. Wherever a plague case occurred, or an infected rat was found, the place was disinfected throughout with pesterine, as well as all neighbouring gullies and passages. The total cost of disinfectants used was 20,900 rupees.

Cholera prevailed slightly throughout the year, there being 74 cases and 61 deaths, but did not become epidemic at any time. The death-rate was 0·06 per 1000, compared with a decennial average of 0·38.

Tuberculosis.—The mortality from tuberculosis, 2·16 per 1000, was higher than in any of the three years immediately preceding, but lower than the decennial average (1907–16), which was 2·58. The apparent increase over the years 1914 to 1916 is considered to have been due to increased accuracy in diagnosis, many cases that would formerly have been returned as fever or bronchitis being now correctly diagnosed and returned as tuberculosis. Moreover, the facilities provided by the tuberculosis dispensaries for advice and treatment have brought to light many cases that would otherwise have been undetected. Fort, Southern Section, had the apparently enormous tuberculosis death-rate of 14·44 per 1000, but of 50 deaths from this cause 43 occurred in the Lady Hardinge Hospital, leaving only 7 deaths (2·02 per 1000) to be debited to the section. The Anti-Tuberculosis League provides two dispensaries, each with a medical officer and three nurses. All cases are reported to the health officer and disinfection of the homes is carried out. A sanitarium is about to be established by the league for treating early cases, segregating advanced cases, dealing with glandular tuberculosis in children, and to be utilised as an open-air school.

Enteric fever.—A considerable increase in enteric fever occurred among the civil population in 1917, commencing in June; during this month and the three months following there were 189 cases and 96 deaths. The cause or causes could not be discovered with certainty. Abolition of the open system of drainage, of the basket privy, and of the night-soil depôt is recommended, and increase in facilities for removal of house refuse and accumulations of manure, so as to diminish breeding places of house-flies, and, perhaps most important of all, early notification.

This most interesting report is accompanied by valuable appendixes of statistical data and is illustrated by many admirable diagrams. If a plan of Bombay could also be inserted we feel sure that it would be appreciated by students of public health and municipal administration.

THE TALE OF A CONVOY.

Sir John Bland-Sutton had the good fortune to travel with a convoy made up of many and various ships, and as he travelled in the escorting cruiser he learned to understand the difficulties over which the British Navy has had to triumph in shepherding its awkward but willing flocks across the Atlantic and into safety. The text of his story, entitled "The Tale of a Convoy" (London: Adlard and Son, pp. 39), is Mr. Kipling's cry of the big steamers:—

> "Send out your big warships to watch your big waters,
> That no one may stop us from bringing you food.
> . . . . . .
> For if anyone hinders our coming you'll starve."

The instinct of a naval captain is to make his ship do precisely what the other ships in the fleet are doing, so keeping her relatively to the other ships always in the same spot. The merchant captain is ever an individualist, and his ship generally gives him little help when he tries to sail her in a fleet. She goes her own gait steadily, she only with difficulty accommodates her course to that of others. But use becomes second nature, and the captains became quite good at station-keeping in the fortnight they spent together, with the escorting cruiser every now and then sailing rings round them and making caustic signals to the laggards and wanderers. Sir John Bland-Sutton recognises the alert devotion to their multifarious duties given by all the officers and men of the big cruiser, the readiness with which they turn out in alarms, the zeal with which a destroyer rushes out to protect one of its charges, the variety of the methods of attack prepared for meeting submarines. In fact, the landsman who reads this little pamphlet does well, for he will learn from it to realise how many are the professions included amongst the personnel of a ship of war.

The author does not forget to emphasise an appeal that has often been made in THE LANCET. "Great ingenuity is exercised to increase the carrying capacity of cargo ships and enable the owners to become richer, but little consideration is given to make the quarters for sailors, firemen, and stewards comfortable." Surely at the end of this war the country, mindful of the splendid help it has had from these devoted seafaring men, will see to it that they are at least as well protected as their brethren who work in factories. No one who reads this little book and its stories of the sufferings endured by the sea-folk in the war can ever but be grateful to them for the invaluable help they have doggedly gone on giving to the country, above all, perhaps, the engineers. The book is written in a pleasant style, which makes the pictures live before us, and even if the account of the Thibetan hell in the last chapter makes us shiver—well, that was intended. Sir John Bland-Sutton is to be congratulated on the interest of the story he had to tell and on the skill of his narration.

THE CHILDREN'S JEWEL FUND.

To the Editor of THE LANCET.

SIR,—The Administrative Committee of the Children's Jewel Fund (a subcommittee of the National Baby Week Council) is anxious to make the best possible distribution of the money which has so far been collected or raised by the sale of jewels by the Appeal Committee. Grants are available for the inception of new infant welfare centres and day nurseries, or towards certain new developments in connexion with existing institutions of the same kind. To the committees of voluntary institutions grants up to 50 per cent. may be given, while the committee is willing to consider applications for small grants towards the initial equipment of entirely municipal undertakings. Grants amounting to £5099 3*s.* have already been allocated to London, whilst Greater London and the Provinces have received £5015 5*s.*

Full information may be had on application to the Secretary to the Administrative Committee, 27A, Cavendish-square, W. 1. Jewels and money should be sent to me at the offices of the Appeal Committee, 175, New Bond-street, W. 1.

I am, Sir, yours faithfully,

CONSUELO MARLBOROUGH,
Honorary Treasurer, Administrative Committee
Nov. 16th, 1918. of the Children's Jewel Fund.

PRECAUTIONS AGAINST FIRE.

WE have often called attention to the warnings issued by the British Fire Prevention Committee in regard to the accidental occurrence of fires at celebrations and entertainments. The approach of the festive season, which the happy issue of the war is likely to make more festive, makes their repetition desirable. The general precautions suggested are:—

Flags and bunting.—All kinds of bunting should be kept well clear of open lights and fires, and away from electric switch-boards and fuses.

Evergreens.—All dry shrubs are easily ignited, especially the fir-trees used in the winter, as they contain a considerable quantity of resin.

Celluloid, being a highly inflammable material, should not be used in decorative schemes.

Tissue paper (unless properly treated) should not be used as a decoration or covering for illuminated globes.

Paper lanterns.—All paper and similar lanterns should be hung by wire, and during the period they are lighted should be watched to see they do not swing. A swinging "Chinese lantern" easily catches fire.

Candles are easily bent out of shape, even by the slight heat of another light below. Bent candles drop down and set things alight. If used for window illumination, curtains, &c., must be well tied back and raised blinds securely fastened.

Electric wiring.—Do not make the slightest change in electric wiring without consulting a competent electrician or an electrical inspector.

With additional Christmas precautions as follows:—

Christmas trees should not be placed near window curtains or in positions in which a draught may cause inflammable draperies, &c., to be blown on to the lights.

Cotton-wool (unless properly treated) should not be used to represent snow, as it is highly inflammable. Asbestos fibre or slag wool are good substitutes.

Matches should not be put within the reach of children. Children should not be allowed to light Christmas tree or other candles unless adults are present. They frequently set fire to their clothing instead.

Buckets of water should always be available, also buckets or bins of dry sand with scoops where oil or spirit is used. Stout blankets are useful for smothering incipient fires. Copies of this warning (No. 33) may be obtained gratuitously on written application, enclosing postage, to the Committee at 8, Waterloo-place, Pall Mall, London, S.W. 1.

Wullie.—The medical practitioner in question would regard the humorous criticism as a deeply-thought-out insult.